SHARP SERVICE MANUAL

No. S7946MDMT15//

MD-MT15(S)
MD-MT15C(S)
MD-MT15H(RD)
MD-MT15H(S)
MD-MT15W(S)
MD-MT161E(S)
MD-MT18H(GR)

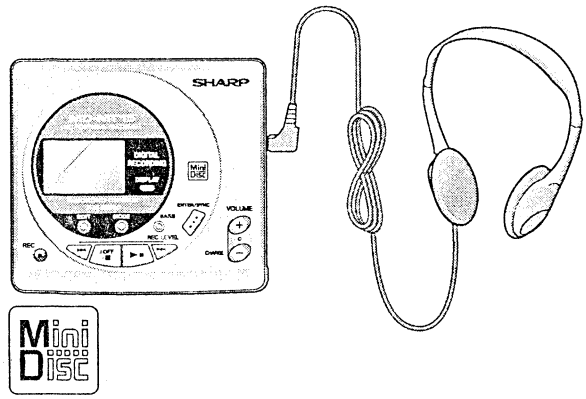

Illustration: MD-MT15/15C

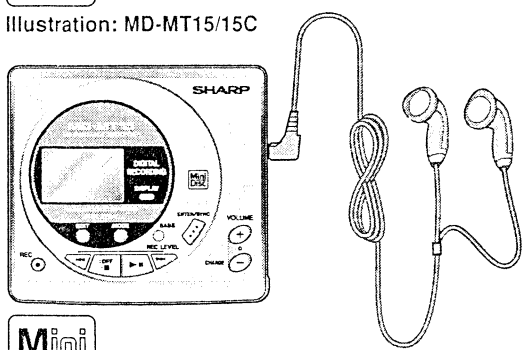

Illustration: MD-MT15H/15W
Illustration: MD-MT161E/18H (Only printing is different.)

- In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

The machine MD-MT15/MT15C/MT15W is a modification of MD-MT20/MT20C/MT20W the difference is the Top Cabinet. Its performance and operation are identical with those of MD-MT20/MT20C/MT20W. For details refer to the service manual (No.S6943MDMT20//) for MD-MT20/MT20C/MT20W.

MD-MT20/MT20C/MT20W

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The machine MD-MT15H/MT161E/MT18H is a modification of MD-MT20H/MT16E the difference is the Top Cabinet. Its performance and operation are identical with those of MD-MT20H/MT16E. For details refer to the service manual (No. S5933MDMT20H/) for MD-MT20H/MT16E.

MD-MT20H/MT16E

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SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

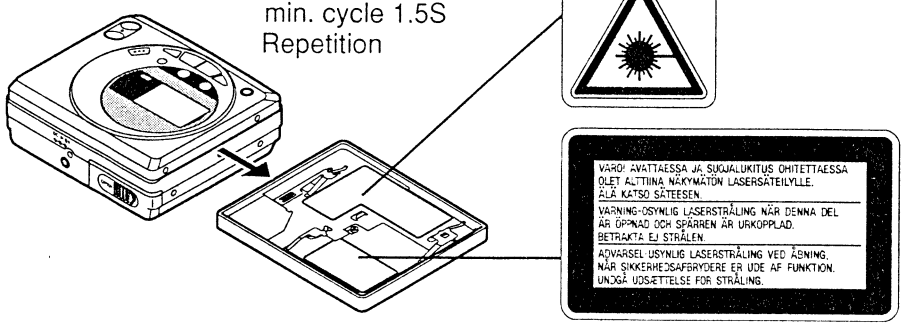
SAFETY PRECAUTION FOR SERVICE MANUAL (MD-MT15W/15H/18H/161E ONLY)

Precaution to be taken when replacing and servicing the Laser Pickup.

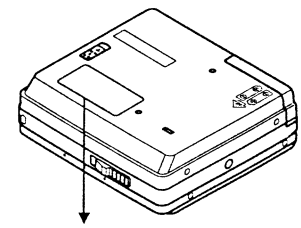
The AEL (Accessible Emission Level) of Laser Power Output for this model is specified to be lower than Class I Requirements. However, the following precautions must be observed during servicing to protect your eyes against exposure to the laser beam.

(1) **When the cabinet has been removed, the power is turned on without a compact disc, and the Pickup is on a position outer than the lead-in position, the Laser will light for several seconds to detect a disc. Do not look into the Pickup Lens.**
(2) **The Laser Power Output of the Pickup inside the unit and replacement service parts have already been adjusted prior to shipping.**
(3) **No adjustment to the Laser Power should be attempted when replacing or servicing the Pickup.**
(4) **Under no circumstances look directly into the Pickup Lens at any time.**
(5) **CAUTION - Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

Laser Diode Properties
- Material: GaAlAs
- Wavelength: 785 nm
- Pulse time:
  Read mode; 0.8 mW Continuous
  Write mode; max. 10 mW 0.5S
  min. cycle 1.5S
  Repetition


CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED.
AVOID EXPOSURE TO BEAM.
VARNING-OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG.
ADVARSEL-USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING-OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVARSEL-USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

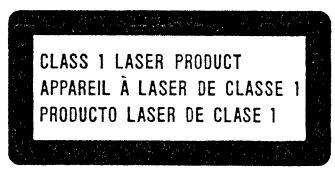
For MD-MT15W/15H/18H



LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT
LASER TŘÍDY 1
LASER TRIEDY 1

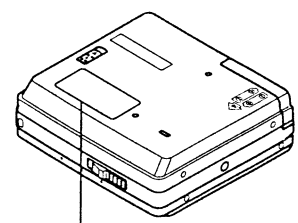
For MD-MT15H/18H

CAUTION



- This Portable MiniDisc Recorder is classified as a CLASS 1 LASER product.
- The CLASS 1 LASER PRODUCT label is located on the bottom.
- Use the Portable MiniDisc Recorder only in accordance with the instructions given in this manual and do not attempt to interfere with the interlock switch or make any other adjustment as this may result in exposure to hazardous radiation.

For MD-MT15W



For MD-MT161E

VARO !	Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING!	Osynlig laserstralning när denna del är öppnad och spärren är urkopplad. Betrakta ej strälen.

Precaution to be taken when replacing and servicing the laser pickup.
The following precautions must be observed during servicing to protect your eyes against exposure to the laser.
Warning of possible eye damage when repairing:
If the AC adaptor or batteries are connected when the top houising (disc cover) of the unit is removed, and the PLAY key is pressed, the laser will light up during focus access (2-3 seconds). (Fig. 2-1) During the operation, the laser will leak from the opening between the magnetic head and the mechanical chassis (Fig. 2-2). In order to protect your eyes, you must not look at the laser during repair. Before repairing be sure to disconnect the AC adaptor and remove the batteries.

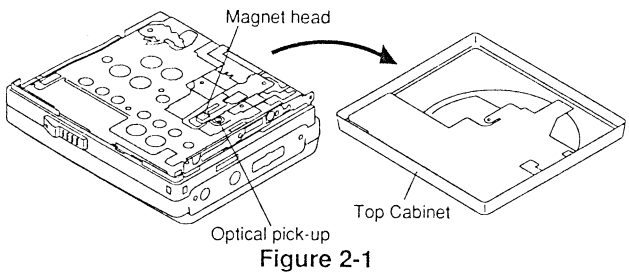


Figure 2-1

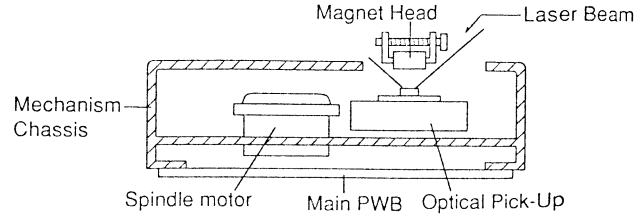


Figure 2-2

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

SPECIFICATIONS

MD-MT15/15C

General

Power source:
DC 5V: AC adaptor (AC 120V, 60 Hz)
DC 3.0V: Commercially available, "AA" size (LR6), alkaline battery x 2
DC 2.4V: Optional Rechargeable Nickel-Metal Hydride battery (AD-T20BT) x 1
DC 4.5V: Optional car adaptor, AD-CA20X (for cars with a 12-24V DC negative ground electrical system)

Power consumption: 7.5 W (AC adaptor)

Output power: RMS: 20 mW (10 mW + 10 mW) (0.2% T.H.D.)

Charging time: Approx. 4 hours (90 %)
Approx. 6 hours (fully charged)
(When using the AC adaptor included with the unit)

Battery life:

When using two, commercially available, high capacity, "AA" size (LR6), alkaline batteries	When using the optional rechargeable battery AD-T20BT (fully charged)
Continuous recording: Approx. 7.5 hours	Continuous recording: Approx. 7.5 hours
Continuous play: Approx. 15 hours	Continuous play: Approx. 12 hours

- The continuous recording time is for analog inputs when the volume level is set to "VOL 0".
- The continuous play time shows the value when the volume level is set to "VOL 15".
- The above values are the standard values when the unit is charged and used at an ambient temperature of 68°F (20°C).
- The operating time when using an alkaline battery may be different, depending on the type and manufacturer of the battery, and on the operating temperature.

Input sensitivity:

Recording level	Reference input level	Input impedance
MIC H	0.25 mV	10 k ohms
MIC L	2.5 mV	10 k ohms
LINE	100 mV	20 k ohms

Output level:

	Specified output	Maximum output level	Load impedance
Headphones	—	10 mW + 10 mW	16 ohms
LINE	250 mV (-12dB)	—	10 k ohms

Dimensions: Width: 3-7/16" (87.9 mm)
Height: 1-3/16" (29.8 mm)
Depth: 3-1/8" (79.7 mm)

Weight: 0.40 lbs. (180g) without battery

Input jack: Line/optical digital, microphone (powered by the main unit)

Output jack: Headphones (impedance: 19 ohms)

MiniDisc Recorder

Type: Portable MiniDisc recorder

Signal readout: Non-contact, 3-beam semi-conductor laser pick-up

Audio channels: Stereo 2 channels/monaural (long-play mode) 1 channel

Frequency response: 20 – 20,000 Hz (± 3 dB)

Rotation speed: Approx. 400 – 900 rpm

Error correction: ACIRC (Advanced Cross Interleave Reed-Solomon Code)

Coding: ATRAC (Adaptive Transform Acoustic Coding), 24-bit computed type

Recording method: Magnetic modulation overwrite method

Sampling frequency: 44.1 kHz (32 kHz and 48 kHz signals are converted to 44.1 kHz, and then recorded.)

Wow and flutter: Unmeasurable (less than ±0.001% W. peak)

MD-MT15H/18H/161E

Output level:

	Specified output	Maximum output level	Load impedance
Earphones	—	10 mW + 10 mW	32 ohms
LINE	250 mV (-12dB)	—	10 k ohms

Dimensions: Width: 87.9 mm (3-7/16")
Height: 29.8 mm (1-3/16")
Depth: 79.7 mm (3-1/8")

Weight: 180g (0.40 lbs.) without battery

Input socket: Line/optical digital, microphone (powered by the main unit)

Output socket: Earphones (impedance: 32 ohms)

MD-MT15H

Power source:
DC 3.0V: Commercially available, "AA" (LR6) size, alkaline battery x 2
DC 2.4V: Optional Rechargeable Nickel-Metal Hydride battery (AD-T20BT) x 1
DC 4.5V: Optional car adaptor, AD-CA20X (for cars with a 12-24V DC negative earth electrical system)
DC 5V: Optional AC adaptor (AD-T20APH, AC 220 - 230V, 50/60 Hz)

Power consumption: 7 W (Optional AC adaptor)

Output power: RMS: 20 mW (10 mW + 10 mW) (0.2% T.H.D.)

Charging time: Approx. 4 hours (90 %)
Approx. 6 hours (fully charged)
(When using the AC adaptor)

MD-MT161E

Power source:
DC 3.0V: Commercially available, "AA" size (LR6), alkaline battery x 2
DC 2.4V: Optional Rechargeable Nickel-Metal Hydride battery (AD-T20BT) x 1
DC 4.5V: Optional car adaptor, AD-CA20X (for cars with a 12-24V DC negative earth electrical system)
DC 5V: Optional AC adaptor (AD-T20APE, AC 230 - 240V, 50/60 Hz)

Power consumption: 7 W (Optional AC adaptor)

Output power: RMS: 20 mW (10 mW + 10 mW) (0.2% T.H.D.)

Charging time: Approx. 4 hours (90 %)
Approx. 6 hours (fully charged)
(When using the AC adaptor)

MD-MT18H

Power source:
DC 5V: AC adaptor (AC 220 - 230V, 50/60 Hz)
DC 3.0V: Commercially available, "AA" (LR6) size alkaline battery x 2
DC 2.4V: Optional Rechargeable Nickel-Metal Hydride battery (AD-T20BT) x 1
DC 4.5V: Optional car adaptor, AD-CA20X (for cars with a 12-24V DC negative earth electrical system)

Power consumption: 7 W (AC adaptor)

Output power: RMS: 20 mW (10 mW + 10 mW) (0.2% T.H.D.)

Charging time: Approx. 4 hours (90 %)
Approx. 6 hours (fully charged)
(When using the AC adaptor included with the unit)

MD-MT15W

Power source: DC 3.0V [Commercially available, "AA" size (LR6), alkaline battery x 2]
DC 4.5V [Optional car adaptor, AD-CA20X (for cars with a 12-24V DC negative earth electrical system)]

Output power: RMS: 20 mW (10 mW + 10 mW) (0.2% T.H.D.)

Battery life:

When using two, commercially available, high capacity, "AA" size (LR6), alkaline batteries
Continuous recording: Approx. 7.5 hours
Continuous play: Approx. 15 hours

- The continuous recording time is for analogue inputs when the volume level is set to "VOL 0".
- The continuous play time shows the value when the volume level is set to "VOL 15".
- The above values are the standard values when the unit is used at an ambient temperature of 20°C (68°F).
- The operating time when using alkaline batteries may be different, depending on the type and manufacturer of the battery, and on the operating temperature.

Input sensitivity:

Recording level	Reference input level	Input impedance
MIC H	0.25 mV	10 k ohms
MIC L	2.5 mV	10 k ohms
LINE	100 mV	20 k ohms

Output level:

	Specified output	Maximum output level	Load impedance
Earphones	—	10 mW + 10 mW	32 ohms
LINE	250 mV (-12dB)	—	10 k ohms

Dimensions: Width 87.9 mm (3-7/16")
Height 29.8 mm (1-3/16")
Depth 79.7 mm (3-1/8")

Weight: 180 g (0.40 lbs.) without battery

Input socket: Line/optical digital, microphone (powered by the main unit)

Output socket: Earphones (impedance: 32 ohms)

Specifications for this model are subject to change without prior notice

NAMES OF PARTS

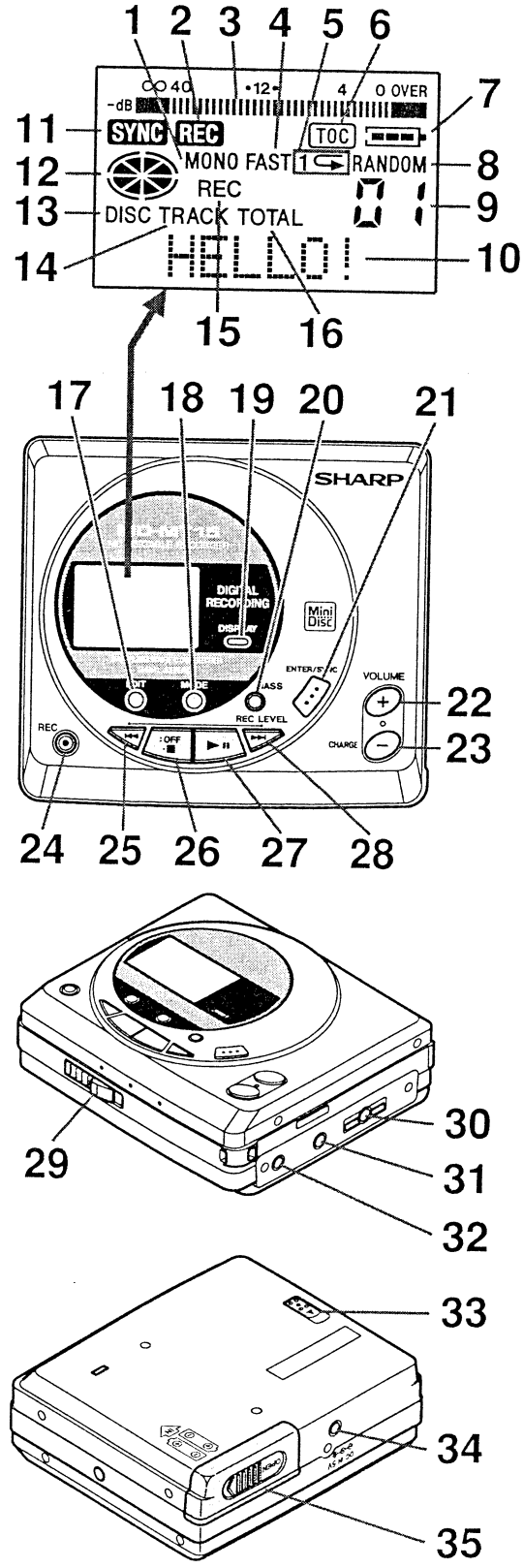
1. Monaural Long-Play Mode Indicator
2. Record Indicator
3. Level Meter
4. Fast Play Indicator
5. Repeat Indicator
6. TOC Indicator
7. Battery Indicator
8. Random Indicator
9. Track Number Indicator
10. Character/Time Information Indicator
11. Synchro Recording Indicator
12. Disc Mode Indicator
13. Disc Name Indicator
14. Track Name Indicator
15. Remaining Recording Time Indicator
16. Total Track Number Indicator

17. Edit/Auto Mark/Time Mark Button
18. Mode Button
19. Display/Character Select Button
20. Bass/Delete Button
21. Enter/Fast Play/Synchro Button
22. Volume Up/Cursor Button
23. Volume Down/Cursor/Charge Button
24. Record/Track Mark Button
25. Fast Reverse/Recording Level Down/ Name Select Button
26. Stop/Power Off Button
27. Play/Pause Button
28. Fast Forward/Recording Level Up/ Name Select Button

29. Open Lever
30. Headphones Jack (MD-MT15/15C)
30. Earphones Socket (MD-MT15H/15W/161E/18H)
31. Optical/Line Input Jack
32. Microphone Input Jack

33. Hold Switch
34. 5V DC Input Jack
35. Battery Cover

Illustration: MD-MT15/15C



POWER SOURCE

You can power this unit with AC adaptor or commercially available alkaline batteries (LR6, "AA" size).
You can also power this unit with a rechargeable battery (AD-T20BT) or car adaptor (AD-CA20X) which are available separately.

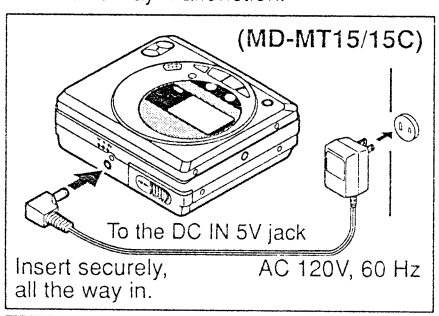
■ AC power (For MD-MT15/15C/18H)

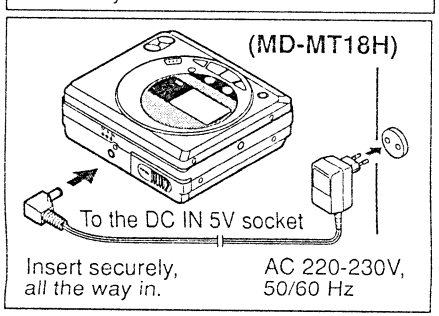
1 Connect the cord from the AC adaptor to the DC IN 5V jack on the unit.

2 Plug the AC adaptor into an AC outlet.

Notes:

- When there is thunder or lightning in your vicinity, unplug the AC adaptor from the AC outlet.
- When the unit is not in use for extended periods, remove the AC adaptor from the AC outlet.
- Never use an AC adaptor other than the one specified. Otherwise, problems or serious hazards may be created.
- Do not bend, twist or tie the power cord or put heavy objects on top of it.
- Be sure to hold the plug when removing it. If you pull on the cord, it may break, or the unit may malfunction.





- AC adaptors of MD-MT15H/15W/161E are option parts.

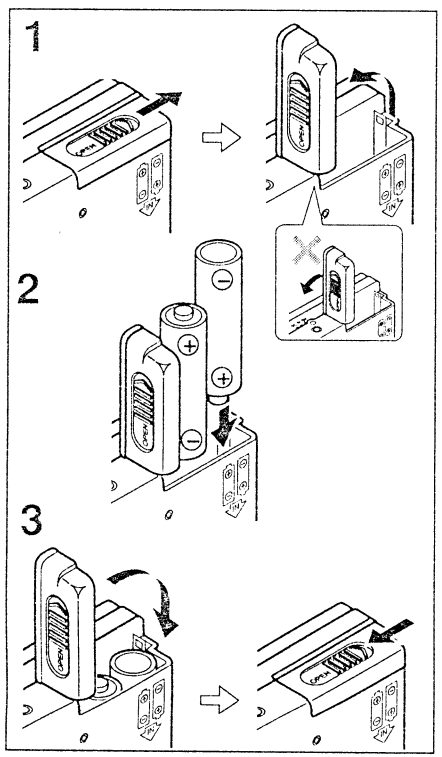
■ Alkaline batteries power

- Use two commercially available alkaline batteries (LR6, "AA" size).

1 Open the battery cover.
- Slide the battery cover as far as it will go to the outside and then lift to open it. If the battery cover is lifted without being slid all the way out, it may break.

2 Insert two alkaline batteries according to the polarity marked on the bottom of the unit.
- Installing the batteries incorrectly may cause the unit to malfunction.

3 Close the battery cover.



RECORDING USING THE OPTICAL DIGITAL CABLE

This is the method used for recording digital signals from CDs exactly as they are stored on the original. Compared to recordings made from analog inputs, digital recordings have extremely high-quality sound.

1 Connect the external equipment.

2 Start recording.

Synchro recording:

Before starting a synchro recording, perform the following steps on the equipment connected to this unit.
(1) First, put it in the playback mode.
(2) Next, put it in the pause mode.
(3) Finally, position it at the beginning of the track you want to record.

(1) Insert a recordable MiniDisc, and then press the REC button.
(2) Press the ENTER/SYNC button.
(3) Start the playback on the equipment connected to this unit.

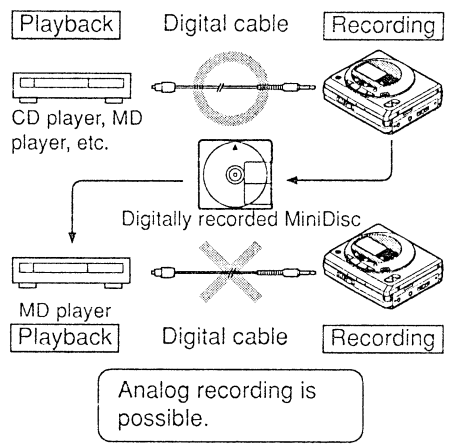
Manual recording:

(1) Insert a recordable MiniDisc, and then press the REC button.
(2) Press the 06 button.

- When recording from digital inputs, it is not necessary to adjust the recording level.

There are cases where digital recording may be impossible.
In the following cases digital recording is impossible, even if you are using digital cables.

When you attempt to make a new digital recording from a track that was digitally recorded on a MiniDisc.
- MiniDiscs are designed so that only first generation digital copies can be made. Further digital copies are prevented by the SCMS (Serial Copy Management System).



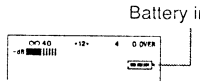
Analog recording is possible.

Notes:
- This unit incorporates a sampling rate converter.
  When this unit is connected to digital equipment such as a DSS tuners or a DAT tape recorder that use a different sampling frequency (32 kHz or 48 kHz), recordings can still be made. (The sampling frequency of this unit is 44.1 kHz.)
- When making a digital recording from a portable CD player (if the player has a sound skip prevention function and this function is turned on) the optical output will drop out and digital recording will not be possible. Be sure to turn the sound skip prevention function off.

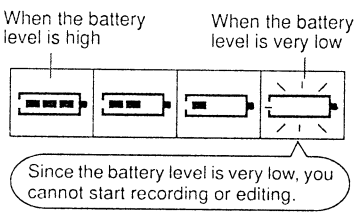
CONVENIENT OPERATION OF THE UNIT

■ Checking the remaining amount of battery level

The remaining amount of battery level is shown by the battery indicator (▭) during operation.



< How to read the battery indicator >


When the battery level is high
When the battery level is very low
Since the battery level is very low, you cannot start recording or editing.

- When the battery is completely discharged, the battery indicator will flash. Recharge the battery or replace the alkaline batteries with new ones.
- When the battery has run completely out, "BATT EMPTY" will appear. Then, the power will be disconnected automatically.

Notes:

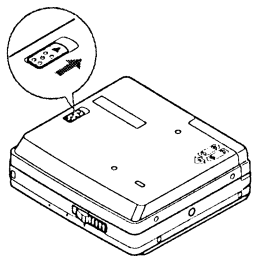
- When using the unit with alkaline batteries or a rechargeable battery, the battery indicator will not correctly display the remaining capacity for approximately 10 seconds after the power has been turned on.
- When an AC adaptor or a car adaptor is used, the battery indicator will not be shown.
- The number of bars shown in the battery indicator may increase or decrease, depending on the operation being performed. This is normal.

■ To prevent the unit from being operated by mistake

To avoid accidental operation of the unit, use the hold function.

Move the HOLD switch to the safety position (direction indicated by the arrow).

- When the unit is in the hold mode, pressing the buttons will have no affect.



- To cancel the hold mode, move the HOLD switch away from the safety position (the opposite direction of the arrow).

If the hold function is active while the power is turned off, the power cannot be turned on by mistake and the battery will not be accidentally drained.

TROUBLESHOOTING

■ Moisture condensation

In the following cases, condensation may form inside the unit.

- Shortly after turning on a heater.
- When the unit is placed in a room where there is excessive steam or moisture.
- When the unit is moved from a cool place to a warm place.

When the unit has condensation inside, the disc signals cannot be read, and the unit may not function properly.

- If this happens, remove the disc. The condensation should evaporate in approximately 1 hour. The unit will then function properly.

Many potential "problems" can be resolved by the owner without calling a service technician.
If something seems to be wrong with this product, check the following before calling your authorized SHARP dealer or service center.

PROBLEM	CAUSE
The unit does not turn on.	● Is the AC adaptor disconnected? ● Is the battery exhausted? ● Is the unit in the hold mode? ● Has condensation formed inside the unit? ● Is the unit being influenced by mechanical shock or by static electricity?
No sound is heard from the headphones.	● Is the volume set too low? ● Is the headphones plugged in? ● Are you trying to play a MiniDisc with data on it instead of a MiniDisc containing music?
When the operation buttons are pressed, the unit does not respond.	● Is the unit in the hold mode? ● Is the battery exhausted?
Some sounds are skipped.	● Is the battery exhausted? ● Is the unit being subjected to excessive vibration?
The MiniDisc cannot be ejected.	● Has the track number or character information been written on the disc yet? ● Is the unit in the recording or editing mode?
Recording and editing are impossible.	● Is the MiniDisc protected against accidental erasure? ● Is the unit connected properly to the other equipment? ● Is the AC adaptor unplugged or did a power failure occur while recording or editing? ● Is the unit in the hold mode? ● Is an optical signal being output from the external equipment? Read the operation manual for the external equipment.

■ If trouble occurs

When this product is subjected to strong external interference (mechanical shock, excessive static electricity, abnormal supply voltage due to lightning, etc.) or if it is operated incorrectly, it may malfunction.
If such a problem occurs, do the following:

1. Unplug the AC adaptor from the AC outlet.
2. Remove the battery.
3. Leave the unit completely unpowered for approximately 30 seconds.
4. Plug the AC adaptor back into the AC outlet and retry the operation.

If strange sounds, smell or smoke come out of the unit or an object is dropped into the unit, remove the AC adaptor from the AC outlet immediately and contact an authorized SHARP service center.

MINIDISC SYSTEM LIMITATIONS

MiniDiscs are recorded using a different system than is used for cassette tapes or DAT recordings. Therefore, the following conditions may be encountered, depending on how the disc has been recorded or edited. These are due to system limitations, and should be considered normal.

Even if the maximum recording time of a MiniDisc has not been reached, "DISC FULL" or "TOC FULL" may be displayed.	When the number of tracks used reaches the limit, regardless of the remaining recording time, further recording will be impossible. (Maximum number of tracks: 255) If a MiniDisc has been recorded or edited repeatedly or if a MiniDisc has scratches on it, it may not be possible to record the maximum number of tracks on it.
Even if the number of tracks and the recording time have not reached the limit, "DISC FULL" may be displayed.	If there are scratches on a disc, the unit will automatically avoid recording in those areas. The recording time will be reduced.
Even if several short tracks are erased, the remaining recording time may not show an increase.	When the remaining recording time of a disc is displayed, short tracks less than 12 seconds long may not be included in the total.
Two tracks may not be combined in editing.	For MiniDiscs on which repeated recording and editing operations were performed, the COMBINE function may not work.
The total of the recorded time and time remaining on a disc may not add up to the maximum possible recording time.	A cluster (about 2 seconds) is normally the minimum unit of recording. So, even if a track is less than 2 seconds long, it will use about 2 seconds of space on the disc. Therefore, the time actually available for recording may be less than the remaining time displayed. If there are scratches on discs, those sections will be automatically avoided (no recording will be placed in those sections). Therefore, the recording time will be reduced.
When recorded tracks are played back using the cue and review operations, some sounds may be skipped.	For MiniDiscs on which repeated recording and editing were performed, some sounds may be skipped while cueing and reviewing.
A track number can be created in the middle of a track.	If there are scratches or dust on a MiniDisc, the track numbers following that track will be increased by one.

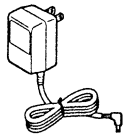
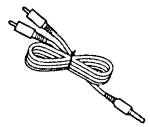
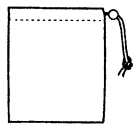
ERROR MESSAGES

Error messages	Meaning	Remedy
BATT EMPTY	● The battery is run down.	● Charge the rechargeable battery or replace the alkaline batteries (or use the AC adaptor for power).
BLANK DISC	● Nothing is recorded.	● Replace the disc with a recorded disc.
Can't COPY	● No copy can be made because of the SCMS copyright system.	● Record using the analog cable.
Can't EDIT	● A track cannot be edited.	● Change the stop position of the track and then try editing it.
Can't REC	● Recording cannot be performed correctly due to vibration or shock in the unit.	● Re-record or replace it with another recordable disc.
Can't WRITE	● Editing is impossible.	● Check the number of tracks.
DEFECT	● The disc is scratched.	● If the sound you hear is not right, try recording again. ● Replace the disc with another recordable disc.
Din UNLOCK	● Poor connection of the digital cable.	● Connect the digital cable securely.
DISC FULL	● The disc is out of recording space.	● Replace it with another recordable disc.
HOLD	● The unit is in the hold mode.	● Return the HOLD switch to its original position.
LOCKED LOCK ERROR	● The OPEN lever was moved during recording or editing.	● Turn off the power and remove the MiniDisc.
NO DISC	● A disc has not been loaded.	● Load a disc.
PB DISC	● You tried to record on a playback-only disc.	● Replace it with a recordable disc.
POWER ?	● Improper power is being supplied.	● Use one of the specified power sources.
PROTECTED	● The MD is write protected.	● Move the write protection knob back to its original position.
READ ERROR	● The disc is damaged.	● Reload the disc or replace it. ● Replace it with another recorded disc.
SORRY	● Since a track number is currently being located or written to, the unit cannot accept your command.	● Wait for a while and try the operation again.
SYSTEM ERR	● You have come to the conclusion that the unit is out of order.	● To have it repaired, go to the distributor where you purchased the unit.
TEMP OVER	● The temperature is too high.	● Turn off the power, and wait for a while.
TOC ERROR	● A large portion of the disc has been damaged.	● Replace it with another recorded disc.
TOC FULL	● There is no space left for recording character information (track names, disc names, etc.).	● Replace it with another recordable disc.
Tr. Protect	● The track has been protected from being erased.	● Edit the track with the device on which it was recorded.
U TOC ERROR	● A large portion of the disc has been damaged. ● There is an error in the recorded signal.	● Replace it with another recorded disc. ● Erase all of the signal errors, and then try recording again.
? DISC	● A disc which contains data other than music was played. ● There is an error in the signal from the disc.	● A disc which contains non-music data cannot be played. ● Replace it with another recorded disc.

SHARP

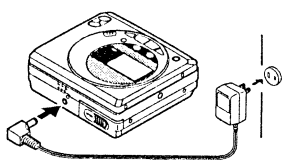
PORTABLE MINIDISC RECORDER
Quick Guide/Guía rápida MD-MT15

1 Check the supplied accessories / *Compruebe los accesorios suministrados*

			
● Headphones x 1 ● *Auriculares x 1*	● AC Adaptor x 1 ● *Adaptador de CA x 1*	● Analog Cable x 1 ● *Cable analógico x 1*	● Carrying Bag x 1 ● *Caja para el transporte x 1*

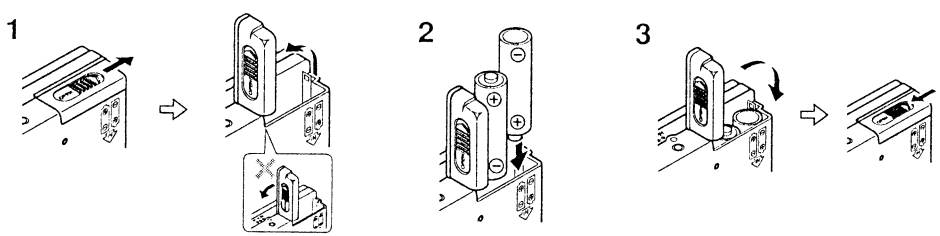
2 Power source / *Alimentación*

■ AC power
■ *Alimentación de CA*

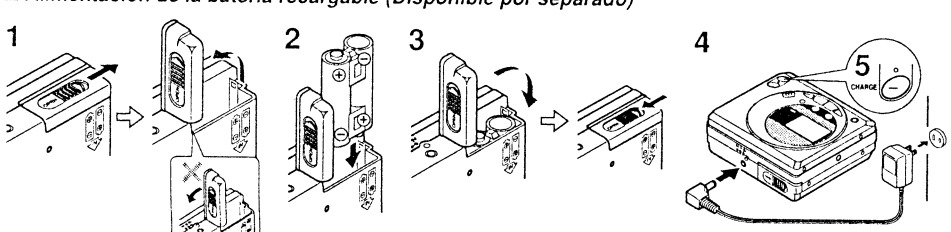


• AC 120V, 60Hz
• *120V CA, 60Hz*

■ Alkaline battery power (Commercially available)
■ *Alimentación de la pila alcalina (Disponible en las tiendas del ramo)*



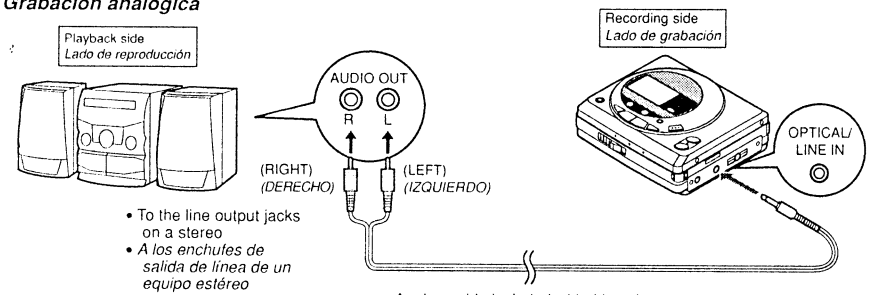
■ Rechargeable battery power (Separately available)
■ *Alimentación de la batería recargable (Disponible por separado)*



• AC 120V, 60Hz
• *120V CA, 60Hz*

3 Connection / *Conexión*

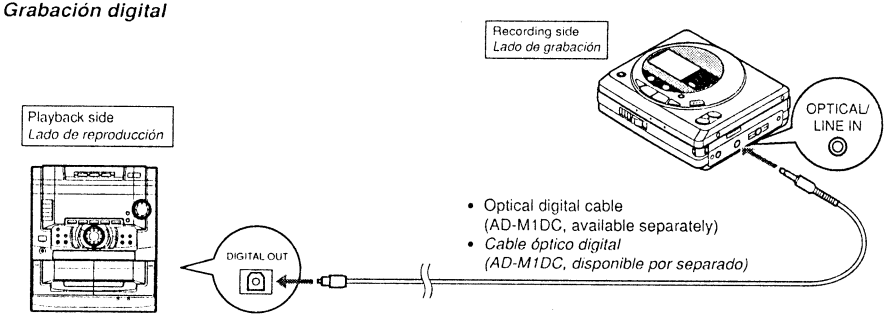
■ Analog recording
■ *Grabación analógica*



• To the line output jacks on a stereo
• *A los enchufes de salida de línea de un equipo estéreo*

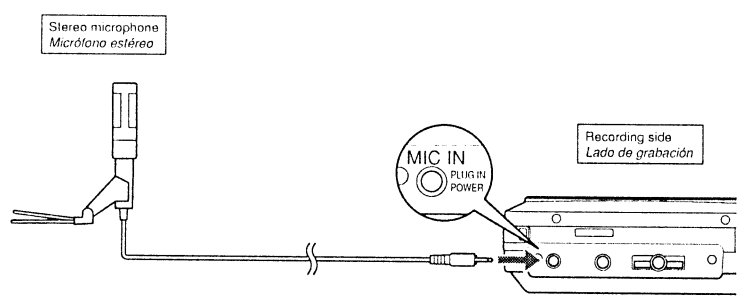
• Analog cable included with this unit
• *Cable analógico suministrado con este*

■ Digital recording
■ *Grabación digital*



• Optical digital cable (AD-M1DC, available separately)
• *Cable óptico digital (AD-M1DC, disponible por separado)*

■ Microphone
■ *Micrófono*

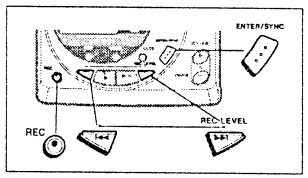


MD-MT15/15C/15H/15W/161E/18H

QUICK GUIDE (MD-MT15 ONLY)

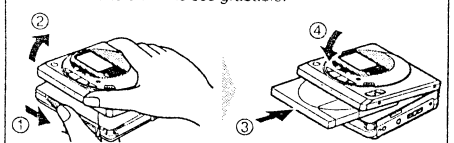
4 Recording / *Grabación*

■ Recording from CDs or MDs (Synchro recording)
■ *Grabación de discos compactos o minidiscos (Grabación sincronizada)*



1 Connect the external equipment.
Conecte el equipo externo.

2 Insert a recordable MiniDisc.
Inserte un minidisco grabable.



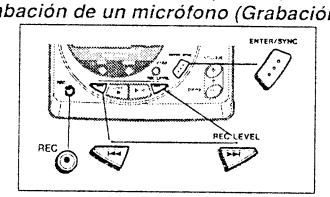
3 REC Press the REC button.
Pulse el botón REC.

4 While playing sound from the external equipment connected to this unit, press the ⏮ or ⏭ button to adjust the recording level.
Mientras se produce el sonido del equipo externo conectado a este aparato, pulse el botón ⏮ o ⏭ para ajustar el nivel de grabación.

5 ENTER/SYNC Press the ENTER/SYNC button.
Pulse el botón ENTER/SYNC.

6 Begin playback on the source equipment.
Inicie la reproducción en el equipo fuente.

■ Recording from the microphone (Mic synchro recording)
■ *Grabación de un micrófono (Grabación sincronizada con micrófono)*



1 Connect the stereo microphone to the MIC IN jack.
Conecte el micrófono estéreo al enchufe MIC IN del aparato principal.

2 Insert a recordable MiniDisc.
Inserte un minidisco grabable.

3 REC Press the REC button.
Pulse el botón REC.

4 Press the ⏮ or ⏭ button to adjust the recording level.
Pulse el botón ⏮ o ⏭ para ajustar el nivel de grabación.

5 ENTER/SYNC Press the ENTER/SYNC button to select the synchro recording level. (This level can be changed, even while recording.)
Pulse el botón ENTER/SYNC para seleccionar el nivel de la grabación sincronizada. (Este nivel podrá cambiarse incluso durante la grabación.)

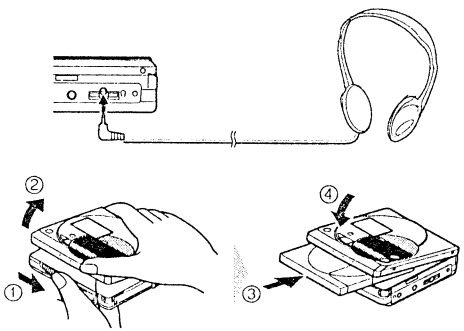
6 When a sound, such as a person speaking, is picked up by the microphone, recording will begin automatically.
Cuando el micrófono capte un sonido, el de una persona que hable por ejemplo, la grabación empezará automáticamente.

To stop recording:
Para detener la grabación:
Press the ■/:OFF button.
Pulse el botón ■/:OFF.

To turn off the power:
Para desconectar la alimentación:
Press the ■/:OFF button while in the stop mode.
Pulse el botón ■/:OFF estando en el modo de parada.

To remove the MiniDisc:
Para extraer el minidisco:
Turn off the power and move the OPEN lever in the direction indicated by the arrow.
Desconecte la alimentación y mueva la palanca OPEN en el sentido indicado por la flecha.

5 Playing a MiniDisc / *Reproducción de un minidisco*



1 Insert the headphones plug into the ∩ jack. Push the plug all the way in.
Inerte la clavija de auriculares en el enchufe ∩. Empuje completamente hacia adentro la clavija.

2 Insert a MiniDisc.
Inserte un minidisco.

- The power will be turned on automatically, and playback will start from the first track. (Auto-play function)
- *La alimentación se conectará automáticamente, y la reproducción empezará desde la primera pista. (Función de reproducción automática)*

Playback does not start when a MiniDisc is inserted:
La reproducción no empieza cuando se inserta un minidisco:
Press the ▶II button.
In the following cases, the auto-play function will not work.
- When the recordable MiniDisc write protection tab is closed.
- When the auto-play function has been canceled.

Pulse el botón ▶II.
En los casos siguientes, la función de reproducción automática no se activará.
- *Cuando esté cerrada la lengüeta de protección contra escritura del minidisco grabable*
- *Cuando haya sido cancelada la función de reproducción automática*

To interrupt playback:
Para interrumpir la reproducción:
Press the ▶II button during playback.
- To resume playback, press the ▶II button again.

Pulse el botón ▶II durante la reproducción.
- *Para reanudar la reproducción, pulse de nuevo el botón ▶II.*

To stop playback:
Para detener la reproducción:
Press the ■/:OFF button.
Pulse el botón ■/:OFF.

To turn off the power:
Para desconectar la alimentación:
Press the ■/:OFF button while in the stop mode.
Pulse el botón ■/:OFF estando en el modo de parada.

6 Sound control / *Control del sonido*

Adjust the volume.
Press the VOLUME + button to increase the volume and the VOLUME – button to decrease the volume.

Ajuste el volumen.
Pulse el botón VOLUME + para aumentar el volumen y el botón VOLUME – para reducirlo.

• Volume (0 - 30)
• *Volumen (0 - 30)*

Adjust the bass level.
Each time the BASS button is pressed, the tone will be switched as follows:

Ajuste el nivel de los graves.
Cada vez que pulse el botón BASS, el tono cambiará de la forma siguiente:

BASS 1 ····· Bass sounds are emphasized slightly.
BASS 2 ····· Bass sounds are emphasized more.
BASS 3 ····· Bass sounds are emphasized even more.
BASS OFF ···· Bass emphasis is canceled.

BASS 1 ····· *Los sonidos graves se realzan ligeramente.*
BASS 2 ····· *Los sonidos graves se realzan más.*
BASS 3 ····· *Los sonidos graves se realzan aún más.*
BASS OFF ···· *El realce de los graves se cancela.*

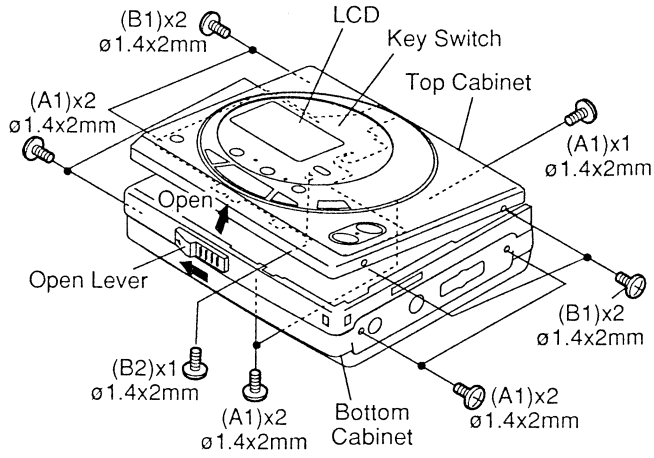
DISASSEMBLY

Cares before disassembling

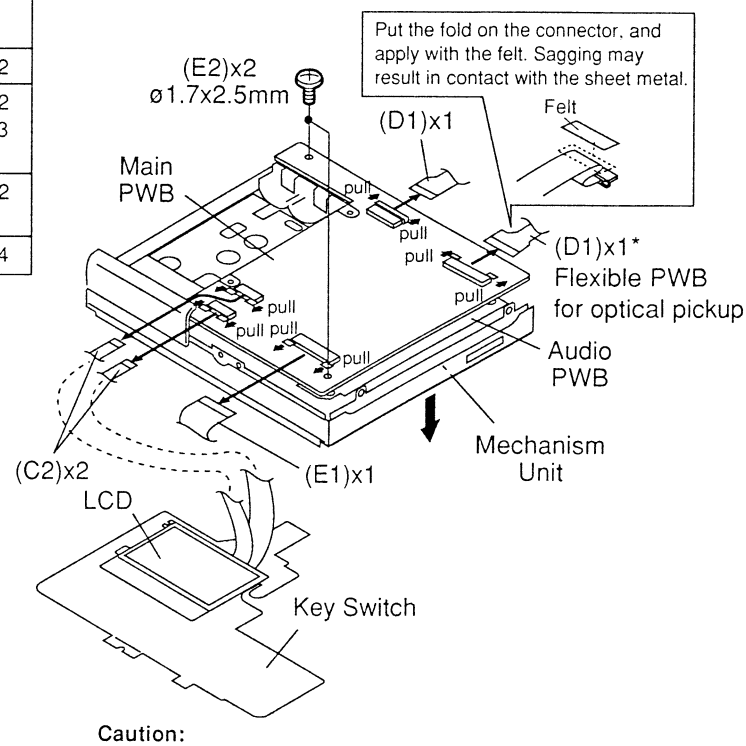
When assembling the machine after disassembling or repair, observe the following requirements so as to ensure safety and performance.

1. Remove the batteries from the machine, and take out the mini-disc.
2. When assembling after repair, be sure to restore the initial location of wires.
   Since the screws are small, incorrect fixing may result in malfunction.
3. When repairing, pay utmost attention to static electricity of IC.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Bottom Cabinet	1. Screw ..... (A1) x7	10-1
2	Top Cabinet	1. Open the Top cabinet. 2. Screw ..... (B1) x4 3. Screw ..... (B2) x1	10-1
3	Key Switch/LCD	1. Flexible PWB..... (C1) x2	10-2
4	Mechanism Unit	1. Flexible PWB..... (D1) x2 2. Raise the rear part, and remove in the arrow direction.	10-2 10-3
5	Main PWB	1. Flat cable ..... (E1) x1 2. Screw ..... (E2) x2	10-2
6	Audio PWB	1. Screw ..... (F1) x3	10-4



Figu re 10-1



Caution:

Carefully handle the main PWB and flexible PWB. After removing the flexible PWB (1*) for the optical pickup from the connector, do not touch directly the front end of flexible PWB with your hand so as to prevent damage of optical pickup by static electricity.

Figure 10-2

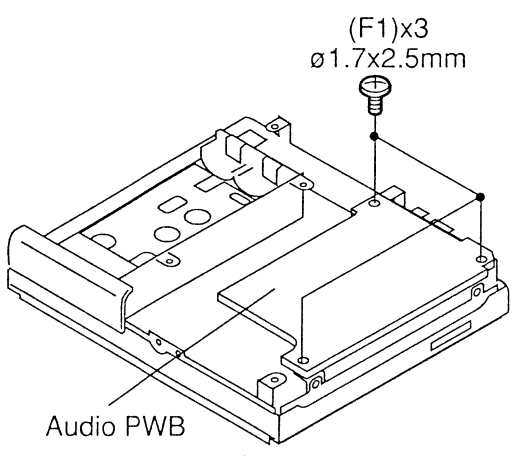


Figure 10-4

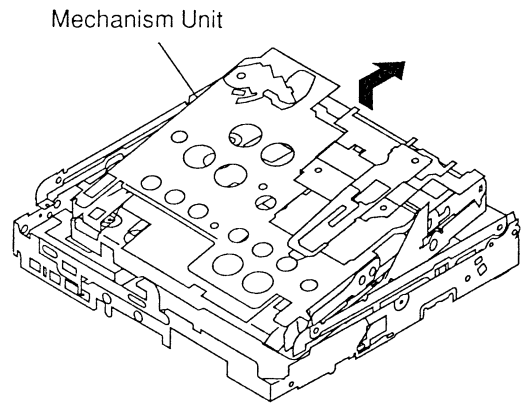


Figure 10-3

NOTES ON SCHEMATIC DIAGRAM

- Resistor:
  To differentiate the units of resistors, such symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
- Capacitor:
  To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
  (CH), (TH), (RH), (UJ): Temperature compensation
  (ML): Mylar type

- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
- Parts marked with "⚠" (⊏ ═ ═ ═ ⊐) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
SW401	EJECT	OFF—ON
SW402	HOLD	OFF—ON
SW403	DISC LID OPEN	OFF—ON
SW902	DISC PROTECT	OFF—ON

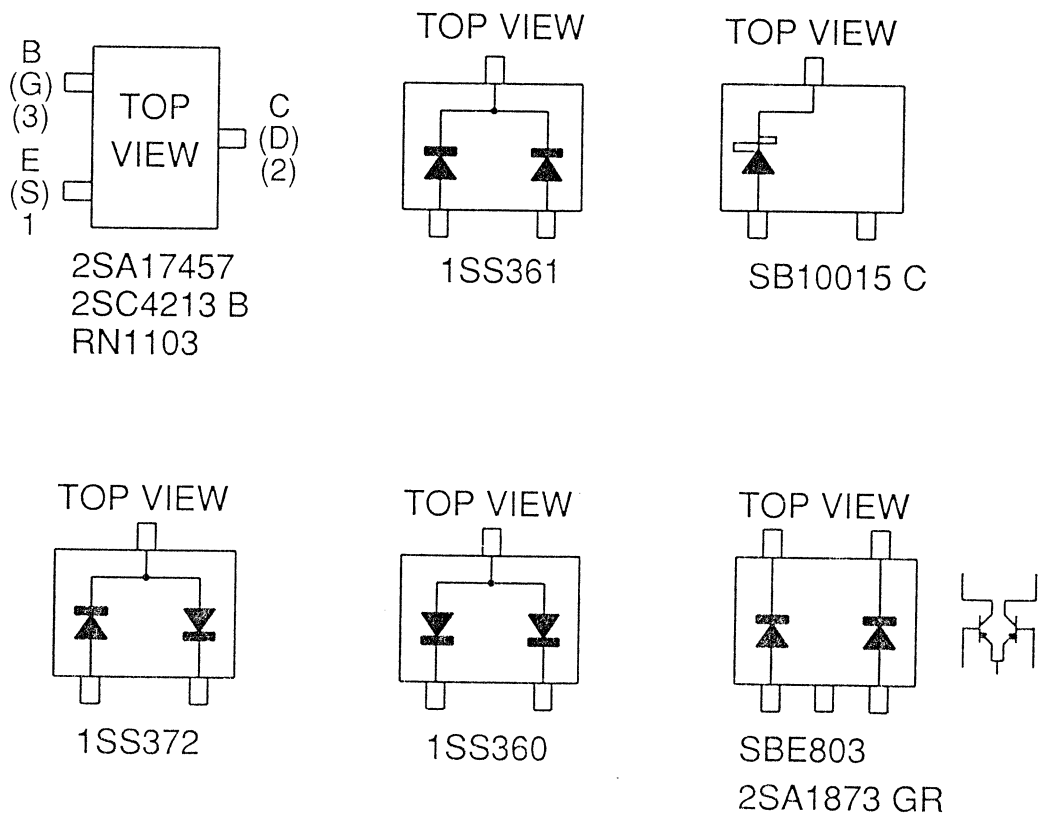


Figure 11 TYPES OF TRANSISTOR AND DIODE

VOLTAGE

IC101	
PIN NO.	VOLTAGE
1	0.72V
2	0.72V
3	0.72V
4	0.72V
5	1.24V
6	1.24V
7	0.71V
8	1.24V
9	1.24V
10	1.24V
11	1.24V
12	1.24V
13	2.5V
14	2.5V
15	0.18V
16	2.5V
17	2.5V
18	0V
19	0V
20	1.48V
21	2.35V
22	0V
23	0V
24	2.5V
25	1.24V
26	1.24V
27	1.24V
28	1.24V
29	1.24V
30	1V
31	1.24V
32	1.24V
33	1.24V
34	NC
35	1.25V
36	1.25V
37	0.17V
38	1.24V
39	1.24V
40	1.24V
41	1.24V
42	2.5V
43	0V
44	0V
45	1.24V
46	1.24V
47	1.24V
48	0V

IC201			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0.88V	51	1V
2	2.5V	52	0V
3	1.27V	53	0V
4	0V	54	0V
5	1.25V	55	0V
6	1.25V	56	2V
7	1.25V	57	0V
8	1.25V	58	0V
9	1.25V	59	0V
10	1.3V	60	0V
11	2.2V	61	0.14V
12	2V	62	2V
13	0V	63	0V
14	0V	64	0.9V
15	0V	65	0.9V
16	0V	66	1.66V
17	1V	67	1V
18	0V	68	2V
19	0V	69	0V
20	0V	70	1V
21	0V	71	1V
22	0V	72	2V
23	0V	73	0V
24	0V	74	0V
25	0V	75	0V
26	0.51V	76	0V
27	0.51V	77	0V
28	0.49V	78	2V
29	1.44V	79	0V
30	1.13V	80	2V
31	2.56V	81	1V
32	0.6V	82	2V
33	1V	83	0V
34	1V	84	0V
35	0.8V	85	1V
36	0.8V	86	2V
37	0.8V	87	2V
38	0V	88	0V
39	2.13V	89	2.36V
40	1.4V	90	0.2V
41	1.56V	91	1.65V
42	1.1V	92	0V
43	1.75V	93	0.1V
44	2.57V	94	0.7V
45	1.74V	95	1.35V
46	1.61V	96	1.76V
47	0V	97	0.32V
48	1.93V	98	2.27V
49	1V	99	2.36V
50	0.91V	100	0.2V

IC401			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0V	51	0V
2	2.5V	52	2.32V
3	0V	53	2.34V
4	2.35V	54	0V
5	NC	55	2.32V
6	0.18V	56	0V
7	0V	57	2.34V
8	0.23V	58	2.34V
9	0V	59	0.3V
10	2.23V	60	2.35V
11	2.12V	61	2.35V
12	2.04V	62	2.28V
13	2.25V	63	2.35V
14	2.35V	64	2.35V
15	0.18V	65	2.35V
16	0V	66	1.08V
17	0V	67	1.13V
18	0V	68	0V
19	2.35V	69	2.34V
20	0.2V	70	2.32V
21	2.35V	71	2.34V
22	2.26V	72	2.34V
23	0.14V	73	2.1V
24	1.6V	74	2.32V
25	0V	75	2.32V
26	0.08V	76	1.93V
27	1.6V	77	2.34V
28	1.26V	78	2.34V
29	1.7V	79	0.82V
30	0.27V	80	1.46V
31	0V	81	1.33V
32	0V	82	2.34V
33	2.1V	83	2.34V
34	2.72V	84	2.34V
35	2.72V	85	0V
36	2.35V	86	1.62V
37	0V	87	0V
38	2.34V	88	0V
39	0V	89	2.32V
40	2.35V	90	2.33V
41	0V	91	2.33V
42	2.35V	92	2.34V
43	2.35V	93	1.7V
44	0V	94	1.5V
45	0V	95	0.12V
46	2.35V	96	2.33V
47	0V	97	2.33V
48	0V	98	2.34V
49	0V	99	0.18V
50	–	100	2.33V

Preform the measurement on the IC401 pin 37 in the TEST mode with GND short-circuited. (LCD is in "TEST" state.)

IC501	
PIN NO.	VOLTAGE
1	2.5V
2	2.5V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0V
9	1V
10	1V
11	1V
12	0V
13	0V
14	2.5V
15	0V
16	0V
17	0V
18	0V
19	0V
20	0V
21	0V
22	0V
23	2.5V
24	2.5V

IC701	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0V
9	0V
10	0V
11	0V
12	0V
13	0V
14	0V
15	0V
16	0V
17	–2.48V
18	0V
19	0V
20	2.72V
21	0.86V
22	0V
23	0V
24	0V

IC801	
PIN NO.	VOLTAGE
1	0V
2	0.2V
3	0V
4	0V
5	0.73V
6	0.73V

IC802	
PIN NO.	VOLTAGE
1	5V
2	5V
3	0.7V
4	5V
5	5V
6	5V

IC805	
PIN NO.	VOLTAGE
1	2.15V
2	1.38V
3	–
4	–2.86V
5	0V
6	0V
7	–1.49V
8	2.73V

IC601	
PIN NO.	VOLTAGE
1	0V
2	1V
3	2.35V
4	0V
5	4.72V
6	0V
7	0V
8	0V
9	4.72V
10	4.72V
11	0V
12	0V
13	0V
14	4.72V
15	0V
16	0V
17	0V
18	0V
19	0V
20	0V
21	0V
22	0V
23	4.72V
24	0V
25	0V
26	0V
27	4.72V
28	4.72V
29	0V
30	0V
31	0V
32	4.72V
33	0V
34	0V
35	2.5V
36	9.67V

IC702	
PIN NO.	VOLTAGE
1	0V
2	9.66V
3	2.34V
4	NC
5	4.46V

IC703	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0.97V
9	0V
10	0V
11	0V
12	0V
13	2.34V
14	0V
15	0V
16	0V
17	–2.87V
18	0V
19	0V
20	2.74V
21	0.85V
22	0V
23	0V
24	0V

IC806	
PIN NO.	VOLTAGE
1	0V
2	0V
3	4.44V
4	0V
5	0V
6	0V

IC808	
PIN NO.	VOLTAGE
1	2.15V
2	0.56V
3	0.56V
4	0V
5	0.56V
6	2.74V

IC807	
PIN NO.	VOLTAGE
1	2V
2	1.98V
3	1.98V
4	0V
5	0V
6	0.94V

IC821	
PIN NO.	VOLTAGE
1	1.25V
2	0.94V
3	1.16V
4	1.15V
5	1.13V
6	0V
7	0.54V
8	4.49V
9	0V
10	0.41V
11	1V
12	1V

IC202	
PIN NO.	VOLTAGE
1	1.28V
2	1.63V
3	2.57V
4	1.76V
5	1.44V
6	1.44V
7	0.6V
8	0.6V
9	0.6V
10	2.56V
11	0.6V
12	1V
13	1V
14	1V
15	1V
16	1.8V
17	1.9V
18	1.7V
19	1.7V
20	0V

IC351	
PIN NO.	VOLTAGE
1	0V
2	0V
3	4.42V
4	0V
5	0V
6	4.42V
7	0V
8	0.9V
9	4.42V
10	0V
11	0.9V
12	4.42V
13	0V
14	4.46V

IC901	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	0V
7	–
8	2.44V
9	2V
10	0V
11	2.48V
12	0.67V
13	0V
14	2.35V
15	0V
16	2.5V
17	0V
18	0V
19	0V
20	0V

IC402	
PIN NO.	VOLTAGE
1	2.34V
2	0V
3	–
4	–
5	0V
6	0V
7	0.26V
8	2.34V

IC431	
PIN NO.	VOLTAGE
1	2.34V
2	2.34V
3	NC
4	0V

IC651	
PIN NO.	VOLTAGE
1	2.74V
2	NC
3	0V
4	0V
5	0V
6	0V
7	–
8	NC
9	–
10	NC

IC771	
PIN NO.	VOLTAGE
1	0V
2	2.74V
3	2.74V
4	NC
5	2.5V

IC354	
PIN NO.	VOLTAGE
1	–
2	–
3	0V
4	0V
5	0V

IC353	
PIN NO.	VOLTAGE
1	2.74V
2	–
3	–
4	0V
5	0V
6	–
7	–
8	2.74V

IC872	
PIN NO.	VOLTAGE
1	4.64V
2	4.64V
3	NC
4	0V

IC851	
PIN NO.	VOLTAGE
1	NC
2	1.16V
3	0V
4	1.17V
5	2.33V

IC841	
PIN NO.	VOLTAGE
1	NC
2	4.49V
3	4.64V
4	0V
5	2.34V

IC871	
PIN NO.	VOLTAGE
1	4.64V
2	4.48V
3	NC
4	0V
5	4.63V

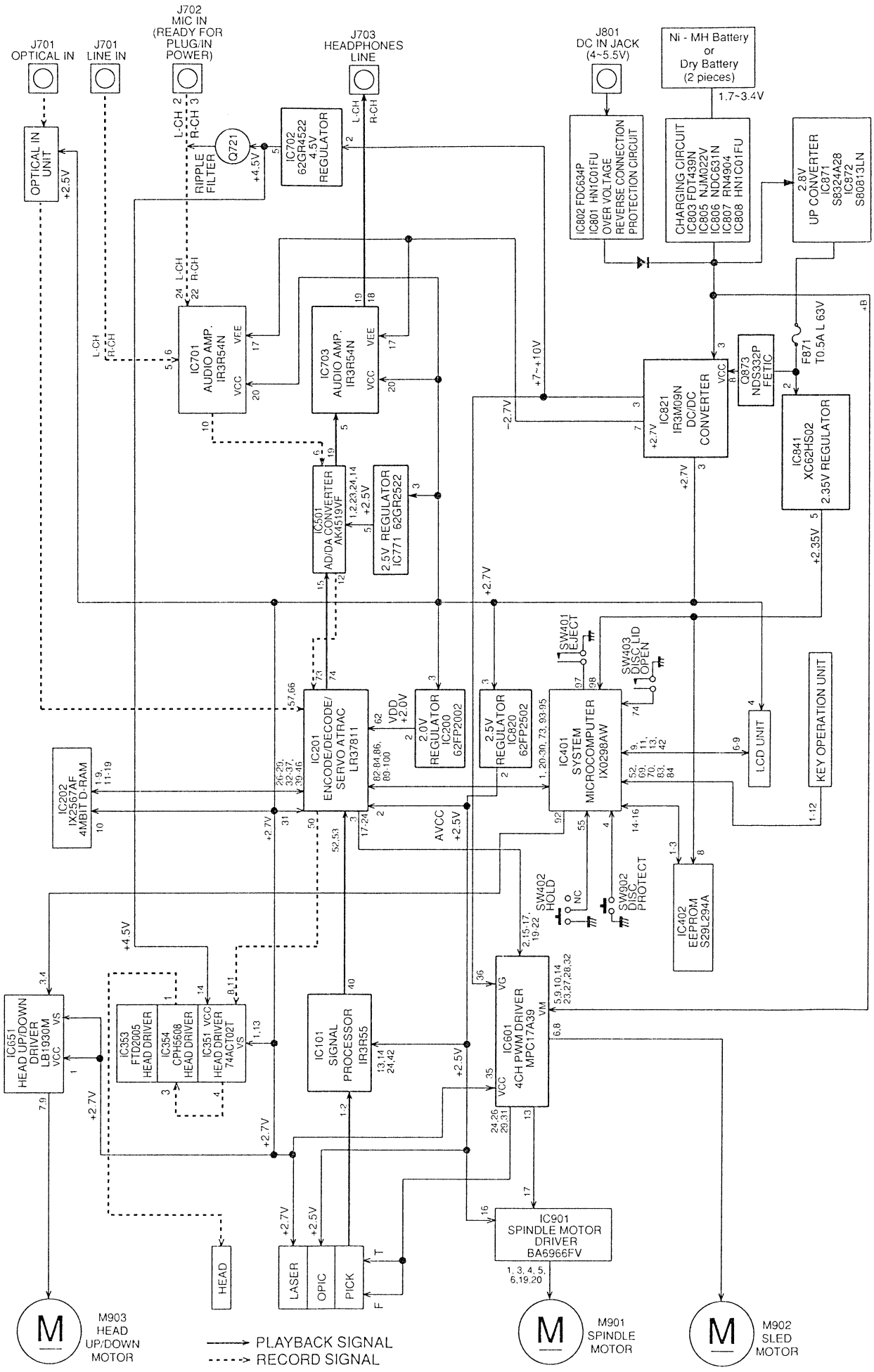
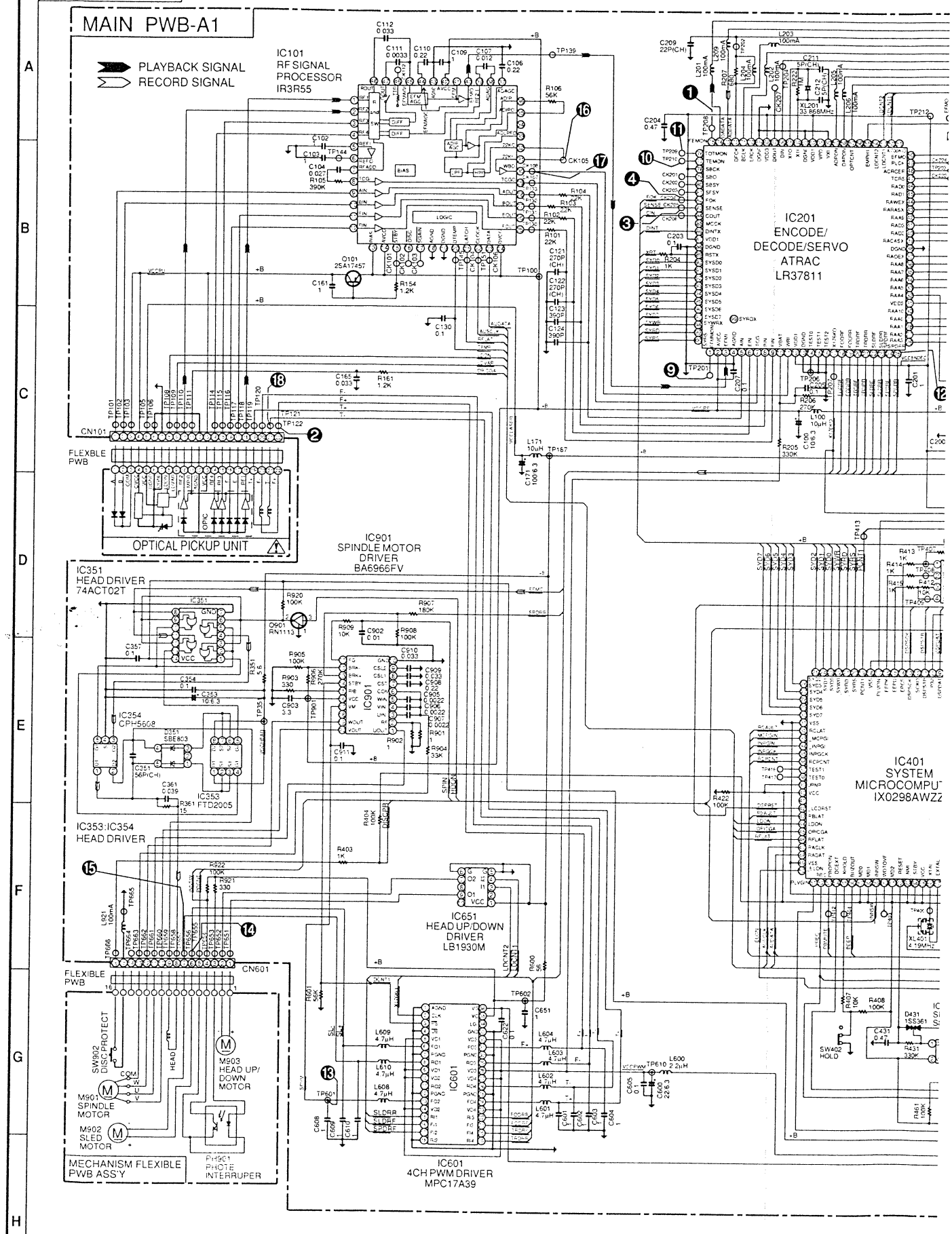


Figure 13 BLOCK DIAGRAM

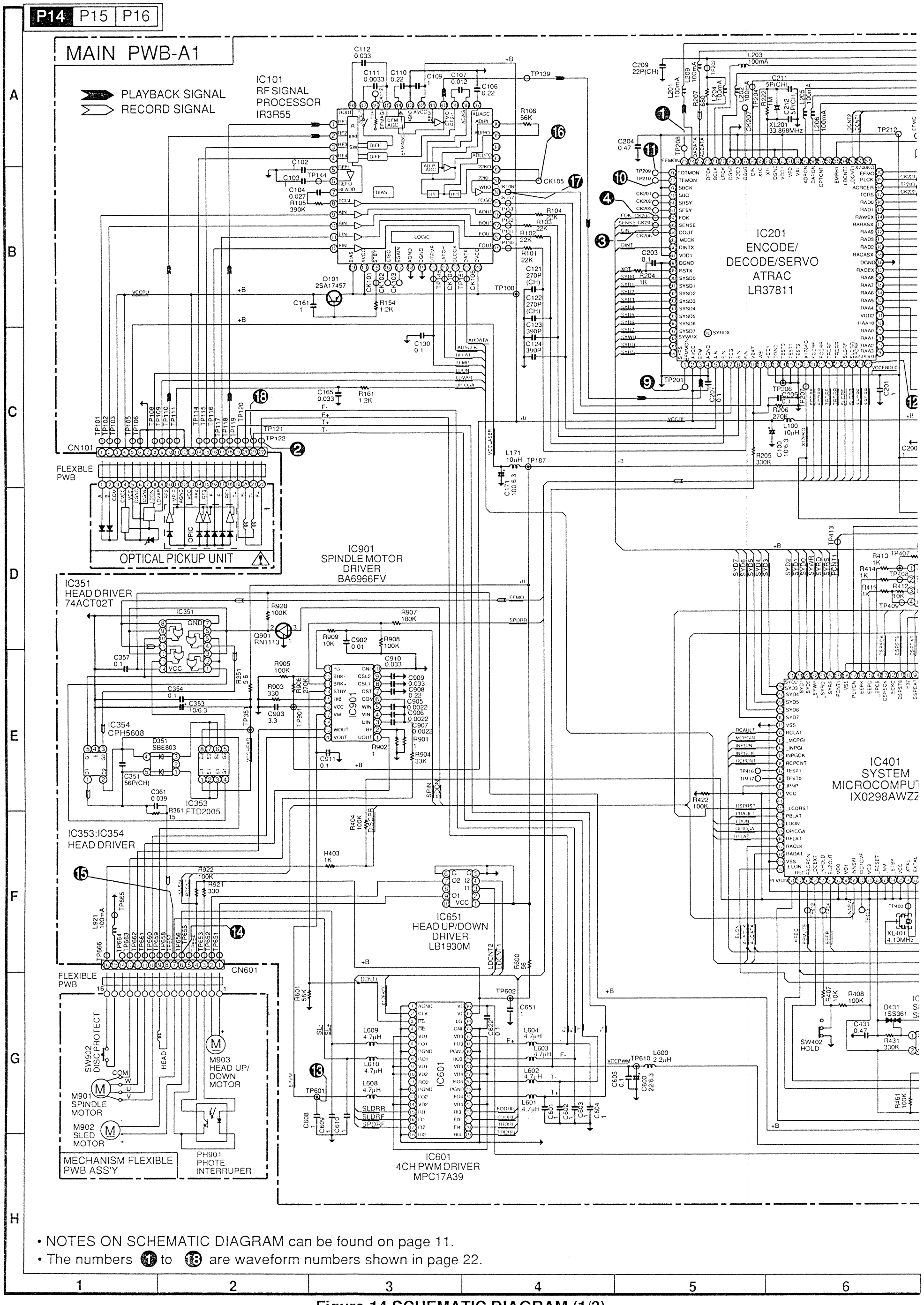
P14 P15 P16



- NOTES ON SCHEMATIC DIAGRAM can be found on page 11.
- The numbers ❶ to ⑱ are waveform numbers shown in page 22.

Figure 14 SCHEMATIC DIAGRAM (1/3)

P14 | P15 | P16



- NOTES ON SCHEMATIC DIAGRAM can be found on page 11.
- The numbers ❶ to ⓲ are waveform numbers shown in page 22.

Figure 14 SCHEMATIC DIAGRAM (1/3)

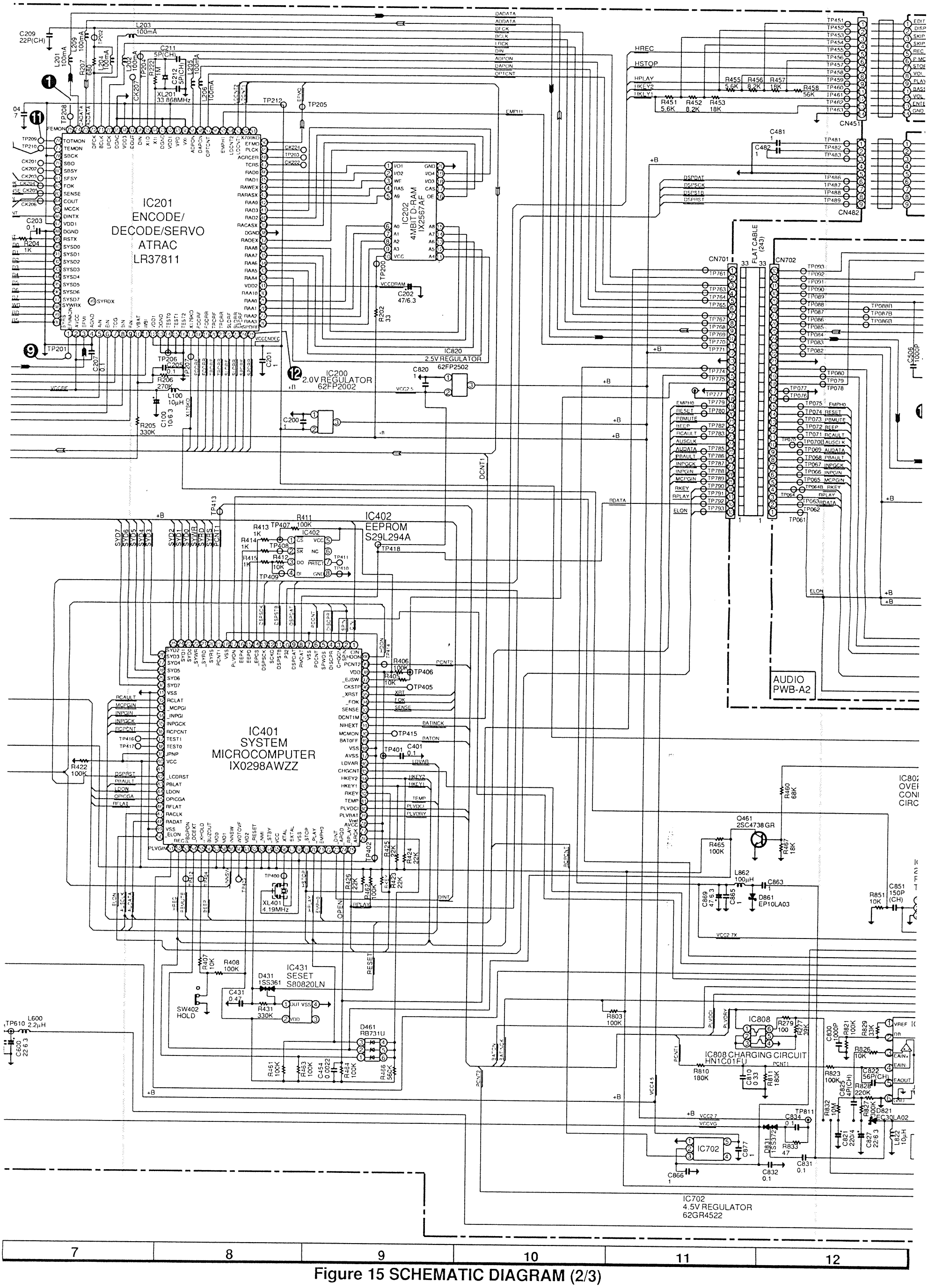


Figure 15 SCHEMATIC DIAGRAM (2/3)

P14 | P15 | P16

• NOTES ON SCHEMATIC DIAGRAM can be found on page 11.
• The numbers ❶ to ⑱ are waveform numbers shown in page 22.

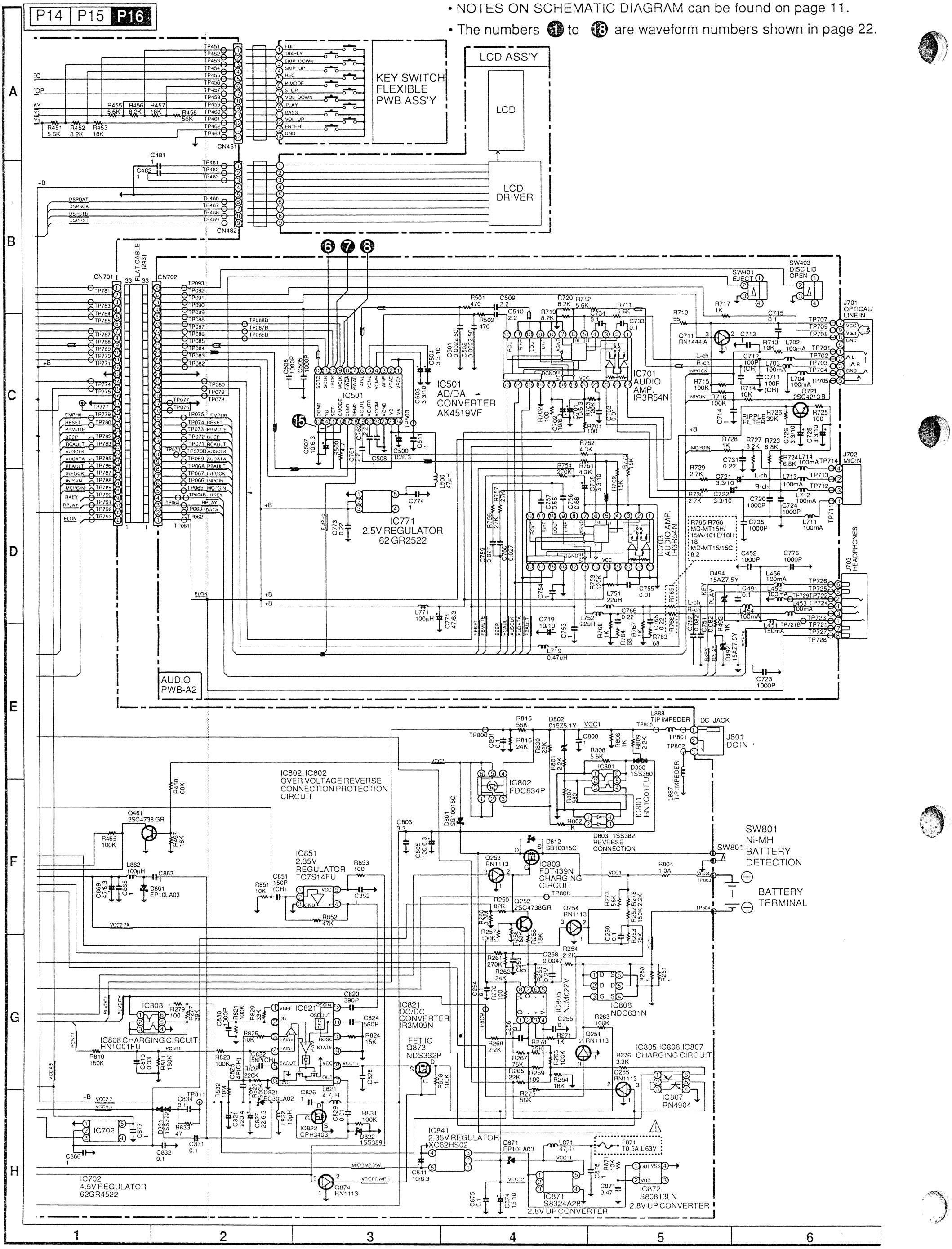


Figure 16 SCHEMATIC DIAGRAM (3/3)

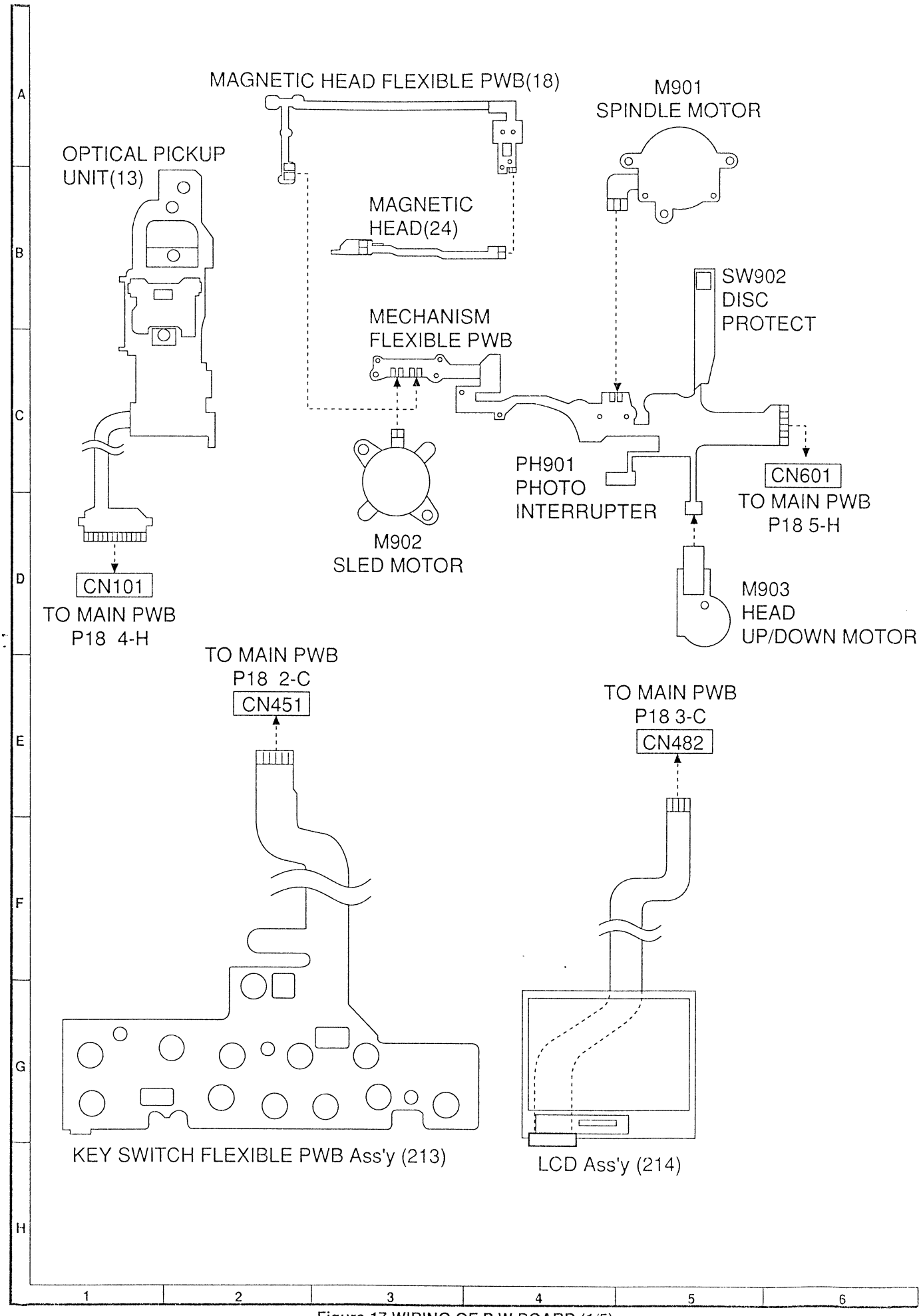
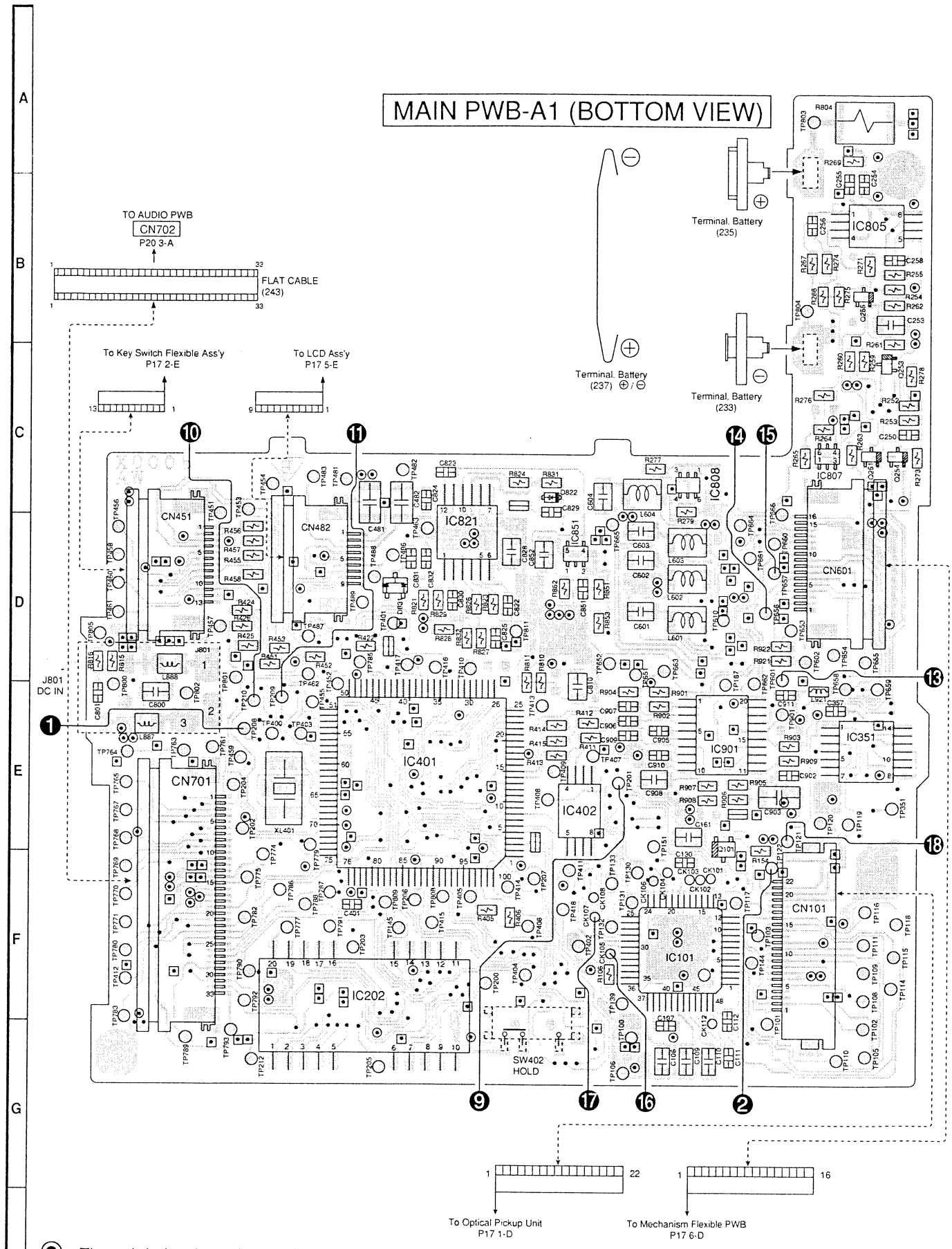


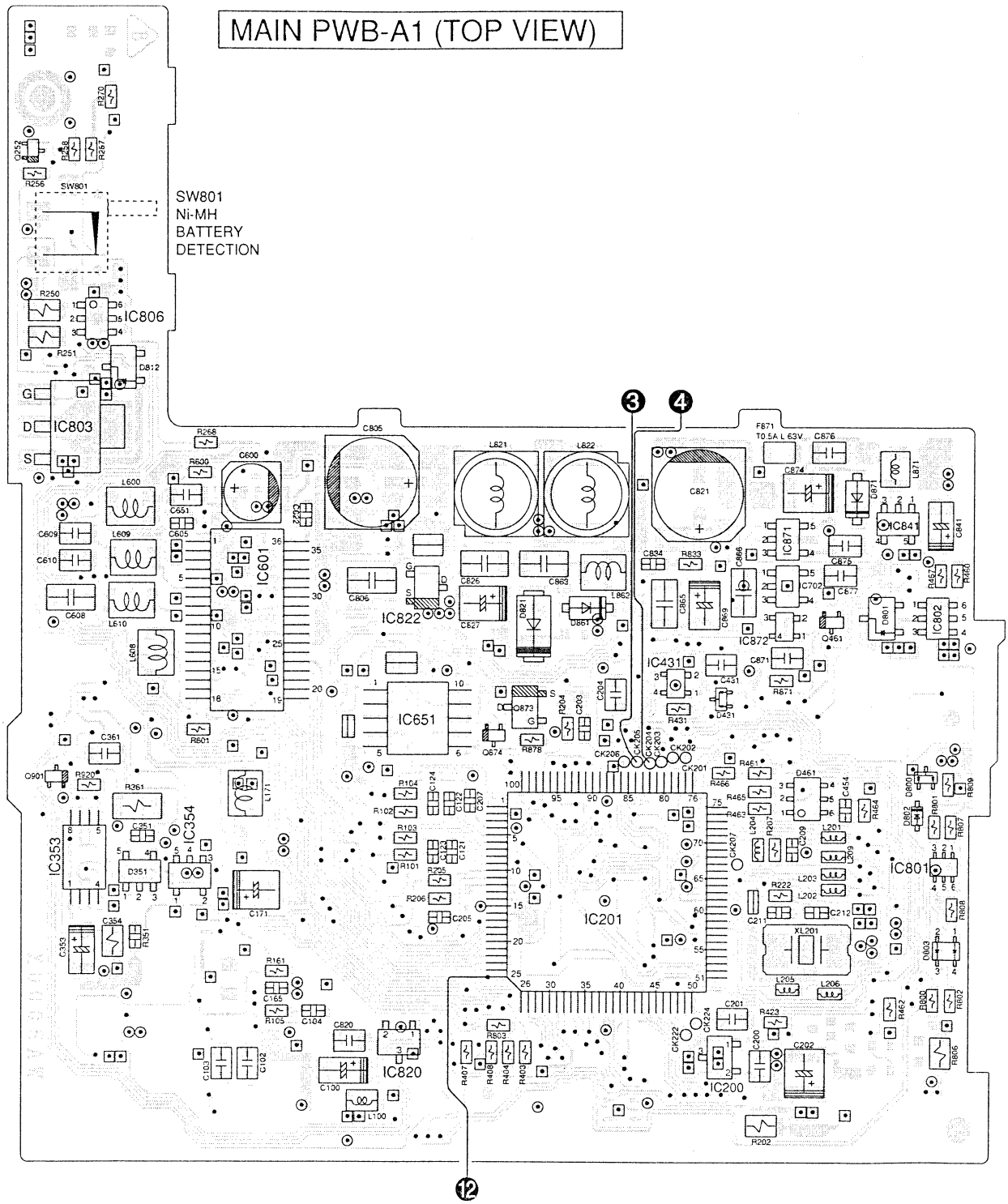
Figure 17 WIRING OF P.W.BOARD (1/5)



◉ : Through-hole where the top, bottom and +B patterns are connected.
◘ : Through-hole where the top, bottom and hround patterns are connected.
● : Through-hole where the top and bottom patterns are connected.

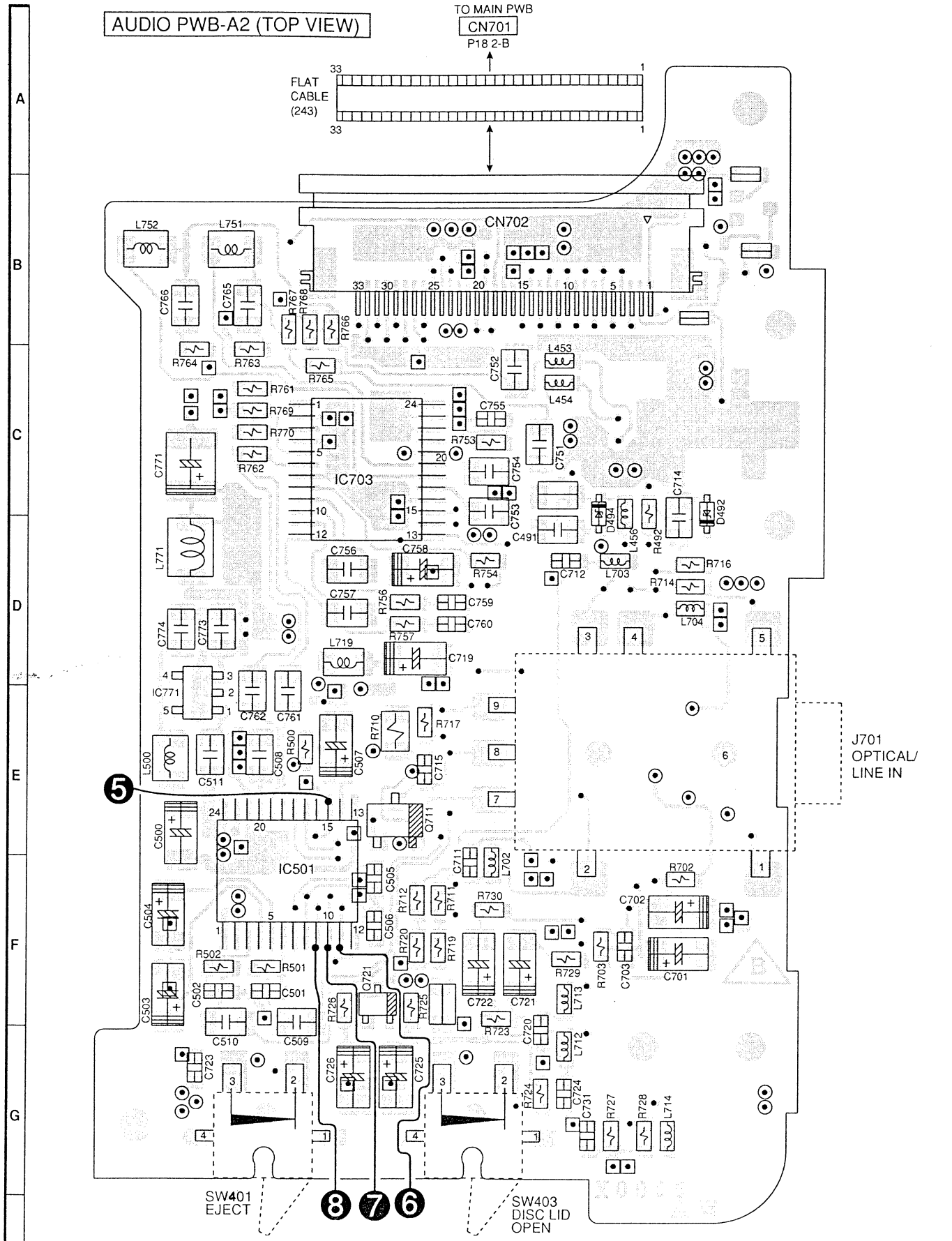
• The numbers ❶ to ⓲ are waveform numbers shown in page 22.

Figure 18 WIRING OF P.W.BOARD (2/5)



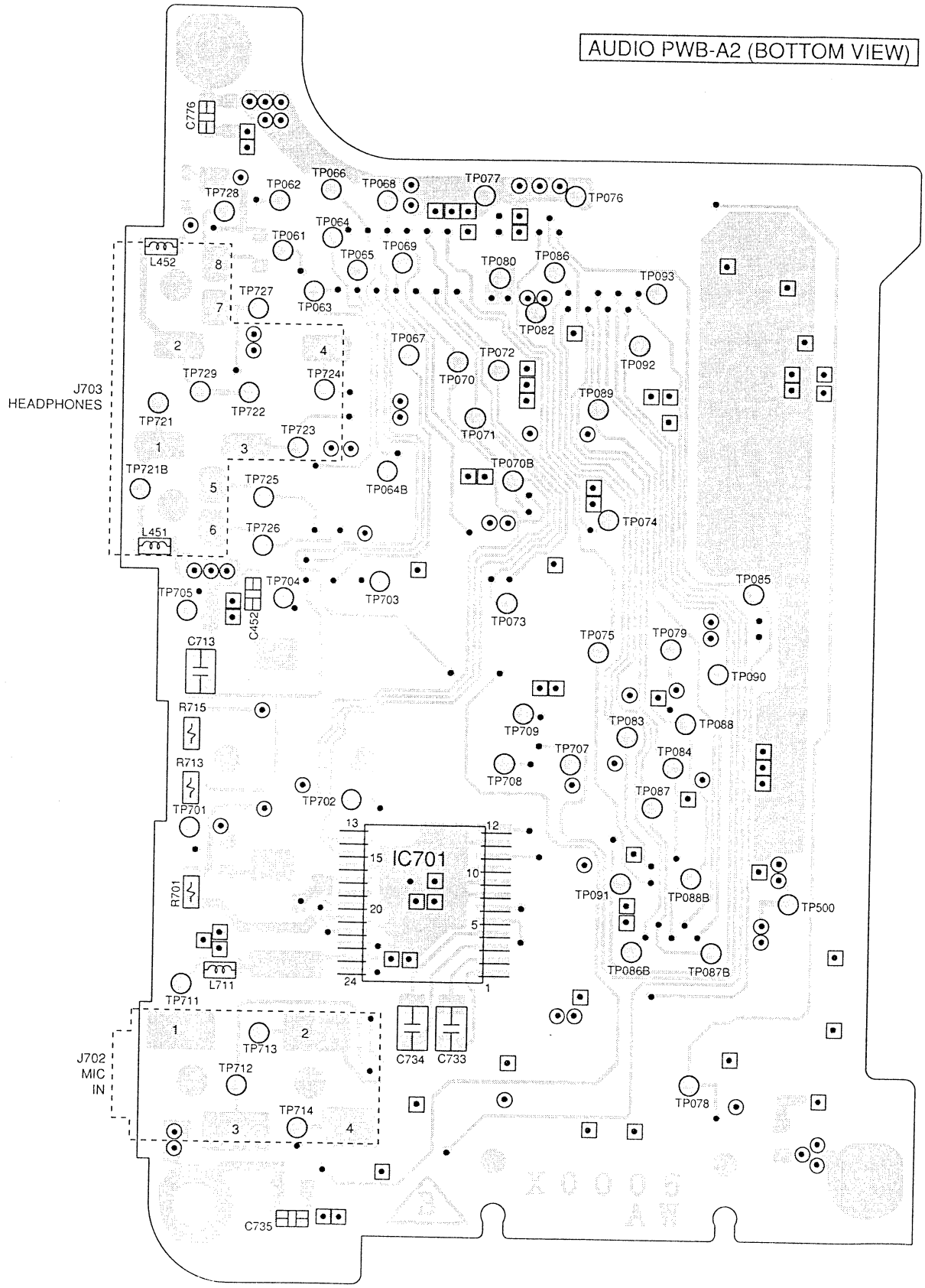
7	8	9	10	11	12

Figure 19 WIRING OF P.W.BOARD (3/5)



◉ : Through-hole where the top, bottom and +B patterns are connected.
◘ : Through-hole where the top, bottom and hround patterns are connected.
● : Through-hole where the top and bottom patterns are connected.
• The numbers ❶ to ⑱ are waveform numbers shown in page 22.

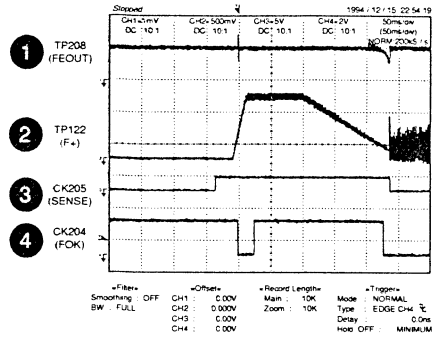
Figure 20 WIRING OF P.W.BOARD (4/5)

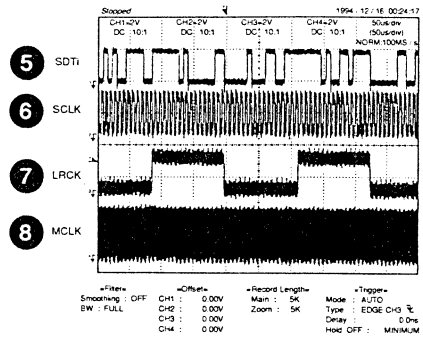


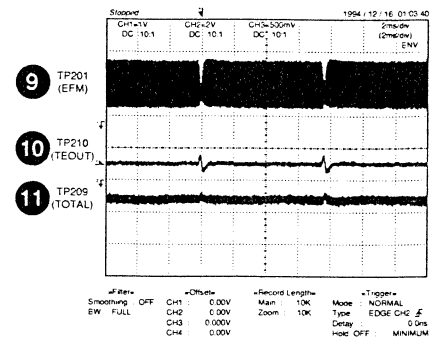
7	8	9	10	11	12

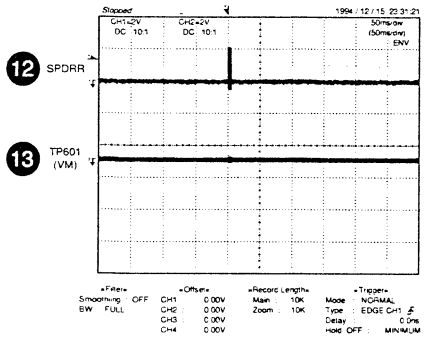
Figure 21 WIRING OF P.W.BOARD (5/5)

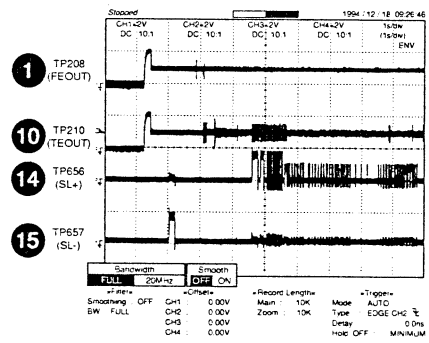
WAVEFORMS OF MD CIRCUIT

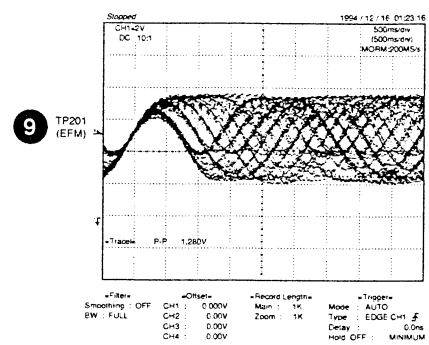


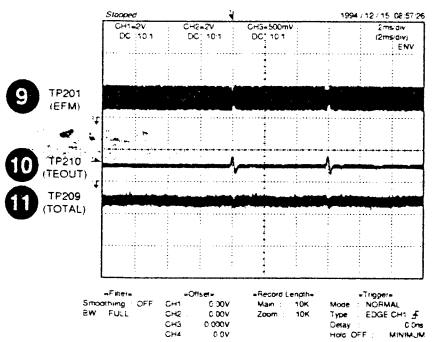


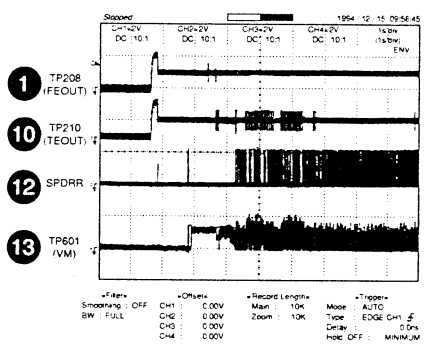


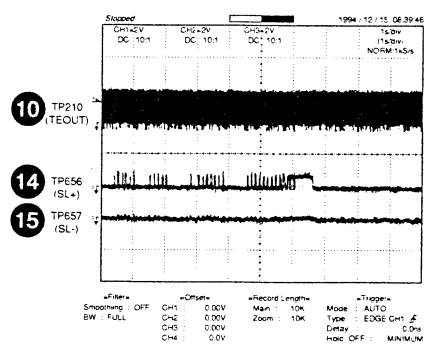


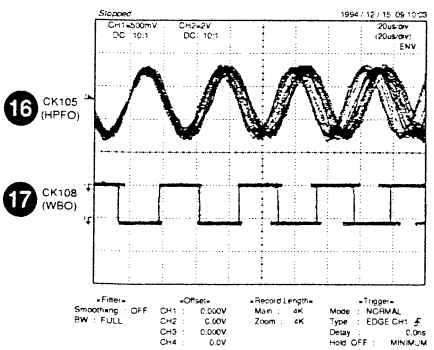


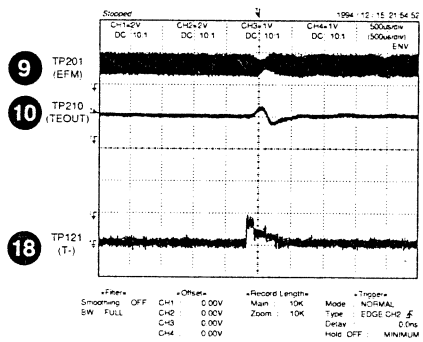




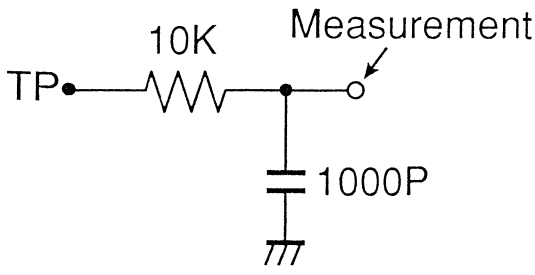








For TP208, TP209, and TP210, use the specific LPF, and observe the waveform.



When watching the EEM monitor (TP201)
Set MSL from 00H to 80H with EEPROM control setting. After completion restore 00H.

SHARP PARTS GUIDE

MODEL **MD-MT15(S)**
MD-MT15C(S)
MD-MT15H(RD)
MD-MT15H(S)
MD-MT15W(S)
MD-MT161E(S)
MD-MT18H(GR)

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. No.
3. PART NO.
4. DESCRIPTION

★ MARK: SPARE PARTS-DELIVERY SECTION

For U.S.A. only

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor,
Please call Toll-Free;
1-800-BE-SHARP

Explanation of capacitors/resistors parts codes

Capacitors

VCC ..... Ceramic type
VCK ..... Ceramic type
VCT ..... Semiconductor type
VC • • MF ..... Cylindrical type (without lead wire)
VC • • MN ..... Cylindrical type (without lead wire)
VC • • TV ..... Square type (without lead wire)
VC • • TQ ..... Square type (without lead wire)
VC • • CY ..... Square type (without lead wire)
VC • • CZ ..... Square type (without lead wire)
VC • • • • • • • • • J .. The 13th character represents capacity difference.
("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
"C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

VRD ..... Carbon-film type
VRS ..... Carbon-film type
VRN ..... Metal-film type
VR • • MF ..... Cylindrical type (without lead wire)
VR • • MN ..... Cylindrical type (without lead wire)
VR • • TV ..... Square type (without lead wire)
VR • • TQ ..... Square type (without lead wire)
VR • • CY ..... Square type (without lead wire)
VR • • CZ ..... Square type (without lead wire)
VR • • • • • • • • • J .. The 13th character represents error.
("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:
Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

MD-MT15/15C/15H/15W/161E/18H

INTEGRATED CIRCUITS

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
IC101	VHIIR3R55//-1	J	AQ	RF Signal,Processor,IR3R55
IC200	VHI62FP2002-1	J	AE	2.0V Regulator,62FP2002
IC201	VHILR37811/-1	J	BB	Encode/Decode/ Servo Atrac,LR37811
IC202	RH-IX2567AFZZ	J	BA	4M bit D-RAM,IX2567AF
IC351	VHI74ACT02T-1	J	AE	Head Driver,74ACT02T
IC353	VHIFTD2005/-1	J	AG	Head Driver,FTD2005
IC354	VHICPH5608/-1	J	AH	Head Driver,CPH5608
IC401	RH-IX0298AWZZ	J	AX	System Microcomputer, IX0298AW
IC402	VHIS29L294A-1	J	AH	EEPROM,S29L294A
IC431	VHIS80820LN-1	J	AD	Reset,S80820LN
IC501	VHIAK4519VF-1	J	AQ	AD/DA Converter,AK4519VF
IC601	VHIMPC17A39-1	J	AQ	4ch PWM Driver,MPC17A39
IC651	VHILB1930M/-1	J	AH	Head Up/Down Driver,LB1930M
IC701	VHIIR3R54N/-1	J	AQ	Audio Amp.,IR3R54N
IC702	VHI62GR4522-1	J	AG	4.5V Regulator,62GR4522
IC703	VHIIR3R54N/-1	J	AQ	Audio Amp.,IR3R54N
IC771	VHI62GR2522-1	J	AG	2.5V Regulator,62GR2522
IC801	VHIHN1C01FU-1	J	AD	Over Voltage Reverse Connection Protection Circuit,HN1C01FU
IC802	VHIFDC634P/-1	J	AG	Over Voltage Reverse Connection Protection Circuit,FDC634P
IC803	VSFDT439N//-1	J	AL	Charging Circuit,FDT439N
IC805	VHINJM022V/-1	J	AG	Charging Circuit,NJM022V
IC806	VHINDC631N/-1	J	AG	Charging Circuit,NDC631N
IC807	VHIRN4904//-1	J	AD	Charging Circuit,RN4904
IC808	VHIHN1C01FU-1	J	AD	Charging Circuit,HN1C01FU
IC820	VHI62FP2502-1	J	AE	2.5V Regulator,62FP2502
IC821	VHIIR3M09N/-1	J	AL	DC/DC Converter,IR3M09N
IC822	VHICPH3403/-1	J	AE	2.7V Regulator,CPH3403
IC841	VHIXC62HS02-1	J	AE	2.35V Regulator,XC62HS02
IC851	VHITC7S14FU-1	J	AE	2.35V Regulator,TC7S14FU
IC871	VHIS8324A28-1	J	AH	2.8V Up Converter,S8324A28
IC872	VHIS80813LN-1	J	AE	2.8V Up Converter,S80813LN
IC901	VHIBA6966FV-1	J	AM	Spindle Motor Driver,BA6966FV
Q873	VHINDS332P/-1	J	AD	FETIC,NDS332P

TRANSISTORS

Q101	VS2SA17457/-1	J	AB	Silicon,PNP,2SA17457
Q251	VSRN1113///-1	J	AC	Digital,NPN,RN1113
Q252	VS2SC4738GR-1	J	AC	Silicon,NPN,2SC4738 GR
Q253~255	VSRN1113///-1	J	AC	Digital,NPN,RN1113
Q461	VS2SC4738GR-1	J	AC	Silicon,NPN,2SC4738 GR
Q711	VSRN1444A//-1	J	AC	Digital,NPN,RN1444 A
Q721	VS2SC4213B/-1	J	AC	Silicon,NPN,2SC4213 B
Q874	VSRN1113///-1	J	AC	Digital,NPN,RN1113
Q901	VSRN1113///-1	J	AC	Digital,NPN,RN1113

DIODES

D351	VHDSBE803//-1	J	AD	Silicon,SBE803
D431	VHD1SS361//-1	J	AB	Silicon,1SS361
D461	VHDRB731U//-1	J	AC	Silicon,RB731U
D492	VHE15AZ7R5Y-1	J	AC	Zener,7.5V,15AZ7.5Y
D494	VHE15AZ7R5Y-1	J	AC	Zener,7.5V,15AZ7.5Y
D800	VHD1SS360//-1	J	AB	Silicon,1SS360
D801	VHDSB10015C-1	J	AD	Silicon,SB10015C
D802	VHE015Z5R1Y-1	J	AD	Zener,5.1V,015Z5.1Y
D803	VHD1SS382//-1	J	AC	Silicon,1SS382
D812	VHDSB10015C-1	J	AD	Silicon,SB10015C
D821	VHDEC30LA02-1	J	AF	Silicon,EC30LA02
D822	VHD1SS389//-1	J	AB	Silicon,1SS389
D831	VHD1SS372//-1	J	AD	Silicon,1SS372
D861	VHDEP10LA03-1	J	AD	Silicon,EP10LA03
D871	VHDEP10LA03-1	J	AD	Silicon,EP10LA03

COILS

L100	VPBNN100K0000	J	AC	10 µH
L171	RCILC0356AFZZ	J	AC	10 µH,Choke
L201~206	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L209	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L451	RCILC0352AFZZ	J	AB	Tip Impeder,150mA
L452~454	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L456	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L500	RCILC0344AFZZ	J	AC	47 µH,Choke
L600	RCILC0331AFZZ	J	AC	2.2 µH,Choke
L601~604	RCILC0358AFZZ	J	AC	4.7 µH,Choke
L608~610	RCILC0358AFZZ	J	AC	4.7 µH,Choke
L702~704	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L711~714	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L719	VPBNNR47K0000	J	AC	0.47 µH
L751,752	RCILC0354AFZZ	J	AC	22 µH,Choke
L771	RCILC0359AFZZ	J	AC	100 µH,Choke
L821	RCILC0004AWZZ	J	AF	4.7 µH,Choke
L822	RCILC0005AWZZ	J	AF	10 µH,Choke
L862	RCILC0359AFZZ	J	AC	100 µH,Choke
L871	RCILC0344AFZZ	J	AC	47 µH,Choke
L887,888	RCORF0017AWZZ	J	AE	Tip Impeder
L921	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA

VIBRATORS

XL201	RCRSC0028AFZZ	J	AH	Crystal,33.868 MHz
XL401	RCRM-0201AFZZ	J	AD	Ceramic,4.19 MHz

CAPACITORS

C100	VCSATA0JJ106M	J	AD	10 µF,6.3V,Electrolytic, Tantalum
C102,103	VCKYTV1AB105K	J	AD	1 µF,10V
C104	VCKYCY1CB273K	J	AA	0.027 µF,16V
C106	VCKYTV1CB224K	J	AB	0.22 µF,16V
C107	VCKYCY1EB123K	J	AA	0.012 µF,25V
C109	VCKYTV1AB105K	J	AD	1 µF,10V
C110	VCKYTV1CB224K	J	AB	0.22 µF,16V
C111	VCKYCY1HB332K	J	AA	0.0033 µF,50V
C112	VCKYCY1CB333K	J	AA	0.033 µF,16V
C121,122	VCCCCY1HH271J	J	AA	270 pF (CH),50V
C123,124	VCCSCY1HL391J	J	AA	390 pF,50V
C130	VCKYCY1CB104K	J	AB	0.1 µF,16V
C161	VCKYTV1AB105K	J	AD	1 µF,10V
C165	VCKYCY1CB333K	J	AA	0.033 µF,16V
C171	VCSATE0JJ107M	J	AE	100 µF,6.3V,Electrolytic, Tantalum
C200,201	VCKYTV1AB105K	J	AD	1 µF,10V
C202	VCSATE0JJ476M	J	AD	47 µF,6.3V,Electrolytic, Tantalum
C203	VCKYCY1CB104K	J	AB	0.1 µF,16V
C204	VCKYTV1CB474K	J	AC	0.47 µF,16V
C205	VCKYCY1CB104K	J	AB	0.1 µF,16V
C207	VCKYCY1CB104K	J	AB	0.1 µF,16V
C209	VCCCCY1HH220J	J	AA	22 pF (CH),50V
C211,212	VCCCCY1HH5R0C	J	AA	5 pF (CH),50V
C250	VCKYCY1CB104K	J	AB	0.1 µF,16V
C253	VCKYTV1CB104K	J	AA	0.1 µF,16V
C254~256	VCKYCY1CB104K	J	AB	0.1 µF,16V
C258	VCKYCY1HB472K	J	AA	0.0047 µF,50V
C351	VCCCCY1HH560J	J	AA	56 pF (CH),50V
C353	VCSAFA0JJ106M	J	AD	10 µF,6.3V,Electrolytic, Tantalum
C354	VCKYCY1CB104K	J	AB	0.1 µF,16V
C357	VCKYCY1CB104K	J	AB	0.1 µF,16V
C361	VCKYTV1HB393K	J	AB	0.039 µF,50V
C401	VCKYCY1CB104K	J	AB	0.1 µF,16V
C431	VCKYTV1CB474K	J	AC	0.47 µF,16V
C452	VCKYCY1HB102K	J	AA	1000 pF,50V
C454	VCKYCY1HB222K	J	AA	0.0022 µF,50V
C481,482	VCKYTQ1CB105K	J	AD	1 µF,16V
C491	VCKYTV1CB104K	J	AA	0.1 µF,16V
C500	VCSATA0JJ106M	J	AD	10 µF,6.3V,Electrolytic, Tantalum
C501,502	VCKYCY1HB222K	J	AA	0.0022 µF,50V
C503,504	VCSATA1AJ335M	J	AB	3.3 µF,10V,Electrolytic, Tantalum
C505,506	VCKYCY1HB102K	J	AA	1000 pF,50V
C507	VCSATA0JJ106M	J	AD	10 µF,6.3V,Electrolytic, Tantalum
C508	VCKYTV1AB105K	J	AD	1 µF,10V
C509,510	VCKYTV1CF225Z	J	AC	2.2 µF,16V
C511	VCKYTV1AB105K	J	AD	1 µF,10V
C600	VCEAPS226AF0J	J	AB	22 µF,6.3V,Electrolytic
C601~604	VCKYTV1AB105K	J	AD	1 µF,10V
C605	VCKYCY1CB104K	J	AB	0.1 µF,16V
C608	VCKYTQ1CB105K	J	AD	1 µF,16V
C609,610	VCKYTV1AB105K	J	AD	1 µF,10V

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
C622	VCKYCY1CB104K	J	AB	0.1 µF,16V
C651	VCKYTV1CF105Z	J	AB	1 µF,16V
C701,702	VCSATA0JJ106M	J	AD	10 µF,6.3V,Electrolytic,Tantalum
C703	VCKYCY1EB103K	J	AA	0.01 µF,25V
C711,712	VCCCCY1HH101J	J	AA	100 pF (CH),50V
C713,714	VCKYTV1AB105K	J	AD	1 µF,10V
C715	VCKYCY1CB104K	J	AB	0.1 µF,16V
C719	VCSATA1AJ106M	J	AE	10 µF,10V,Electrolytic,Tantalum
C720	VCKYCY1HB102K	J	AA	1000 pF,50V
C721,722	VCSATA1AJ335M	J	AB	3.3 µF,10V,Electrolytic,Tantalum
C723,724	VCKYCY1HB102K	J	AA	1000 pF,50V
C725,726	VCSATA1AJ335M	J	AB	3.3 µF,10V,Electrolytic,Tantalum
C731	VCKYCY1CF224Z	J	AB	0.22 µF,16V
C733,734	VCKYTV1CB104K	J	AA	0.1 µF,16V
C735	VCKYCY1HB102K	J	AA	1000 pF,50V
C751,752	VCKYTV1CB823K	J	AB	0.082 µF,16V
C753,754	VCKYTV1CF105Z	J	AB	1 µF,16V
C755	VCKYCY1EB103K	J	AA	0.01 µF,25V
C756,757	VCKYTV1AB684K	J	AC	0.68 µF,10V
C758	VCSATA1AJ335M	J	AB	3.3 µF,10V,Electrolytic,Tantalum
C759,760	VCKYCY1CB273K	J	AA	0.027 µF,16V
C761,762	VCKYTV1CF225Z	J	AC	2.2 µF,16V
C765,766	VCKYTV1CB224K	J	AB	0.22 µF,16V
C771	VCSATE0JJ476M	J	AD	47 µF,6.3V,Electrolytic,Tantalum
C773	VCKYTV1CB224K	J	AB	0.22 µF,16V
C774	VCKYTV1CF105Z	J	AB	1 µF,16V
C776	VCKYCY1HB102K	J	AA	1000 pF,50V
C800	VCKYTV1AB105K	J	AD	1 µF,10V
C801	VCKYCY1CB104K	J	AB	0.1 µF,16V
C805	VCEAPS107AF0J	J	AC	100 µF,6.3V,Electrolytic
C806	VCKYTQ1AB335K	J	AF	3.3 µF,10V
C810	VCKYTV1CB334K	J	AC	0.33 µF,16V
C820	VCKYTV1AB105K	J	AD	1 µF,10V
C821	VCEAPS227AF0G	J	AC	220 µF,4V,Electrolytic
C822	VCCCCY1HH560J	J	AA	56 pF (CH),50V
C823	VCCSCY1HL391J	J	AA	390 pF,50V
C824	VCCSCY1HL561J	J	AA	560 pF,50V
C825	VCCCCY1HH4R0C	J	AA	4 pF (CH),50V
C826	VCKYTQ1CB105K	J	AD	1 µF,16V
C827	RC-SZ0001AWZZ	J	AG	22 µF,6.3V,Electrolytic
C828	VCKYTV1AB105K	J	AD	1 µF,10V
C829	VCKYCY1EB103K	J	AA	0.01 µF,25V
C830	VCKYCY1HB102K	J	AA	1000 pF,50V
C831,832	VCKYCY1CB104K	J	AB	0.1 µF,16V
C834	VCKYCY1CB104K	J	AB	0.1 µF,16V
C841	VCSATA0JJ106M	J	AD	10 µF,6.3V,Electrolytic,Tantalum
C851	VCCCCY1HH151J	J	AA	150 pF (CH),50V
C852	VCKYTV1AB105K	J	AD	1 µF,10V
C863	VCKYTQ1CB105K	J	AD	1 µF,16V
C865,866	VCKYTQ1CB105K	J	AD	1 µF,16V
C869	VCSATE0JJ476M	J	AD	47 µF,6.3V,Electrolytic,Tantalum
C871	VCKYTV1CB474K	J	AC	0.47 µF,16V
C874	RC-SZ1145AFZZ	J	AD	15 µF,10V,Electrolytic
C875	VCKYTV1CB104K	J	AA	0.1 µF,16V
C876,877	VCKYTV1AB105K	J	AD	1 µF,10V
C902	VCKYCY1EB103K	J	AA	0.01 µF,25V
C903	VCKYTQ1AB335K	J	AF	3.3 µF,10V
C905~907	VCKYCY1HB222K	J	AA	0.0022 µF,50V
C908	VCKYTV1CB224K	J	AB	0.22 µF,16V
C909,910	VCKYCY1CB333K	J	AA	0.033 µF,16V
C911	VCKYCY1CB104K	J	AB	0.1 µF,16V

RESISTORS

	VRS-CY1JB000J	J	AA	0 ohm,Jumper,0.8×1.55mm, Green
	VRS-TV2AB000J	J	AA	0 ohm,Jumper,1.25×2mm,Green
R101~104	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R105	VRS-CY1JB394J	J	AA	390 kohms,1/16W
R106	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R154	VRS-CY1JB122J	J	AA	1.2 kohms,1/16W
R161	VRS-CY1JB122J	J	AA	1.2 kohms,1/16W
R202	VRS-TV2AB330J	J	AA	33 ohms,1/10W
R204	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R205	VRS-CY1JB334F	J	AA	330 kohms,1/16W
R206	VRS-CY1JB274F	J	AA	270 kohms,1/16W
R207	VRS-CY1JB681J	J	AA	680 ohms,1/16W
R222	VRS-CY1JB105J	J	AA	1 Mohm,1/16W
R250,251	VRS-TV2AB1R0F	J	AB	1 ohm,1/10W
R252	VRS-CY1JB154D	J	AA	150 kohms,1/16W
R253	VRS-CY1JB753D	J	AA	75 kohms,1/16W
R254	VRS-CY1JB222J	J	AA	2.2 kohms,1/16W
R255	VRS-CY1JB225J	J	AA	0.2 Mohms,1/16W
R256	VRS-CY1JB183J	J	AA	18 kohms,1/16W
R257	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R258	VRS-CY1JB184J	J	AA	180 kohms,1/16W
R259	VRS-CY1JB823J	J	AA	82 kohms,1/16W
R260	VRS-CY1JB335J	J	AA	3.3 Mohms,1/16W
R261	VRS-CY1JB274F	J	AA	270 kohms,1/16W
R262	VRS-CY1JB243F	J	AA	24 kohms,1/16W
R263	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R264	VRS-CY1JB183D	J	AA	18 kohms,1/16W
R265	VRS-CY1JB223D	J	AA	22 kohms,1/16W
R266	VRS-CY1JB104D	J	AA	100 kohm,1/16W
R267	VRS-CY1JB753D	J	AA	75 kohms,1/16W
R268	VRS-CY1JB222J	J	AA	2.2 kohms,1/16W
R269,270	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R271	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R273	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R274	VRS-CY1JB753D	J	AA	75 kohms,1/16W
R275	VRS-CY1JB563D	J	AA	56 kohms,1/16W
R276	VRS-CY1JB332D	J	AA	3.3 kohms,1/16W
R277	VRS-CY1JB393J	J	AA	39 kohms,1/16W
R278	VRS-CY1JB222J	J	AA	2.2 kohms,1/16W
R279	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R351	VRS-TV2AB5R6J	J	AA	5.6 ohms,1/10W
R361	VRS-TQ2BB150J	J	AA	15 ohms,1/8W
R403	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R404	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R405	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R406	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R407	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R408	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R411	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R412	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R413~415	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R422	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R423	VRS-CY1JB223F	J	AA	22 kohms,1/16W
R424	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R425	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R426	VRS-CY1JB223F	J	AA	22 kohms,1/16W
R431	VRS-CY1JB334J	J	AA	330 kohms,1/16W
R451	VRS-CY1JB562J	J	AA	5.6 kohms,1/16W
R452	VRS-CY1JB822J	J	AA	8.2 kohms,1/16W
R453	VRS-CY1JB183J	J	AA	18 kohms,1/16W
R455	VRS-CY1JB562J	J	AA	5.6 kohms,1/16W
R456	VRS-CY1JB822J	J	AA	8.2 kohms,1/16W
R457	VRS-CY1JB183J	J	AA	18 kohms,1/16W
R458	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R460	VRS-CY1JB683J	J	AA	68 kohms,1/16W
R461~465	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R466	VRS-CY1JB564J	J	AA	560 kohms,1/16W
R467	VRS-CY1JB183J	J	AA	18 kohms,1/16W
R492	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R500	VRS-CY1JB4R7J	J	AA	4.7 ohms,1/16W
R501,502	VRS-CY1JB471J	J	AA	470 ohms,1/16W
R600	VRS-CY1JB560J	J	AA	56 ohms,1/16W
R601	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R701,702	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R703	VRS-CY1JB124J	J	AA	120 kohms,1/16W
R710	VRS-TV2AB560J	J	AA	56 ohms,1/10W
R711,712	VRS-CY1JB562J	J	AA	5.6 kohms,1/16W
R713,714	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R715,716	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R717	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R719,720	VRS-CY1JB822J	J	AA	8.2 kohms,1/16W
R723,724	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R725	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R726	VRS-CY1JB393J	J	AA	39 kohms,1/16W
R727	VRS-CY1JB822J	J	AA	8.2 kohms,1/16W
R728	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R729,730	VRS-CY1JB272J	J	AA	2.7 kohms,1/16W
R753	VRS-CY1JB124J	J	AA	120 kohms,1/16W
R754	VRS-CY1JB274J	J	AA	270 kohms,1/16W
R756,757	VRS-CY1JB273J	J	AA	27 kohms,1/16W
R761,762	VRS-CY1JB432J	J	AA	4.3 kohms,1/16W
R763,764	VRS-CY1JB680J	J	AA	68 ohms,1/16W
R765,766	VRS-CY1JB180J	J	AA	18 ohms,1/16W [MD-MT15H/15W/161E/18H]
R765,766	VRS-CY1JB8R2J	J	AA	8.2 ohms,1/16W [MD-MT15/15C]
R767,768	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R769,770	VRS-CY1JB153J	J	AA	15 kohms,1/16W
R800	VRS-CY1JB223J	J	AA	22 kohms,1/16W

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
R801	VRS-CY1JB222F	J	AA	2.2 kohms,1/16W
R802	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R803	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R804	VHHMSMDC100-1	J	AH	Thermistor,Positive/Negative C,1.0A
R806	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R807	VRS-CY1JB681F	J	AA	680 ohms,1/16W
R808	VRS-CY1JB562J	J	AA	5.6 kohms,1/16W
R809	VRS-CY1JB222J	J	AA	2.2 kohms,1/16W
R810,811	VRS-CY1JB184F	J	AA	180 kohms,1/16W
R815	VRS-CY1JB563F	J	AA	56 kohms,1/16W
R816	VRS-CY1JB243F	J	AA	24 kohms,1/16W
R821	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R823	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R824	VRS-CY1JB153J	J	AA	15 kohms,1/16W
R826	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R827	VRS-CY1JB304F	J	AF	300 kohms,1/16W
R828	VRS-CY1JB224F	J	AA	220 kohms,1/16W
R829	VRS-CY1JB333J	J	AA	33 kohms,1/16W
R831	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R832	VRS-CY1JB106J	J	AA	10 Mohm,1/16W
R833	VRS-CY1JB470J	J	AA	47 ohms,1/16W
R851	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R852	VRS-CY1JB473J	J	AA	47 kohms,1/16W
R853	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R871	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R878	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R901,902	VRS-CY1JB1R0J	J	AA	1 ohm,1/16W
R903	VRS-CY1JB331J	J	AA	330 ohms,1/16W
R904	VRS-CY1JB333J	J	AA	33 kohms,1/16W
R905	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R906	VRS-CY1JB274J	J	AA	270 kohms,1/16W
R907	VRS-CY1JB184J	J	AA	180 kohms,1/16W
R908	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R909	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R920	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R921	VRS-CY1JB331J	J	AA	330 ohms,1/16W
R922	VRS-CY1JB104J	J	AA	100 kohm,1/16W

OTHER CIRCUITRY PARTS

CN101	QCNCW801XAFZZ	J	AH	Socket,22Pin
CN451	QCNCW804NAFZZ	J	AE	Socket,13Pin
CN482	QCNCW804JAFZZ	J	AE	Socket,9Pin
CN601	QCNCW716RAFZZ	J	AF	Socket,16Pin
CN701,702	QCNCWWQ33AFZZ	J	AE	Socket.33Pin
⚠F871	QFS-L501AAFN0	J	AG	Fuse,T0.5A L 63V
J701	VHLGP1FB95R-1	J	AP	Jack,Optical/Line IN
J702	QJAKM0014AWZZ	J	AF	Jack,Mic IN
J703	QJAKM0015AWZZ	J	AL	Jack,Headphones
J801	QJAKC0007AWZZ	J	AF	Jack,DC IN
M901	RMOTV0524AFZZ	J	AS	Motor Ass'y [Spindle]
M902	RMOTV0511AFZZ	J	AT	Motor Ass'y [Sled]
M903	RMOTV0512AFM1	J	AR	Motor Ass'y [Head Up/Down]
PH901(8-3)	VHPGP1S93K/-1	J	AF	Phote Interrupter,GP1S93K
SW401	QSW-M0172AFZZ	J	AD	Switch,Push Type [Eject]
SW402	QSW-S0948AFZZ	J	AC	Switch,Slide Type [Hold]
SW403	QSW-M0172AFZZ	J	AD	Switch,Push Type [Disc Lid Open]
SW801	QSW-M0006AWZZ	J	AD	Switch,Push Type [Ni-MH Battery Detection]
SW902(8-2)	QSW-M0170AFZZ	J	AD	Switch,Push Type [Disc Protect]

MECHANICAL PARTS

1	NGERH0597AFZZ	J	AC	Wheel,Drive
2	NSFTD0334AFZZ	J	AD	Screw,Drive
3	LHLDX3141AFM1	J	AP	Cartridge Holder Ass'y
4	MSPRT1625AFFJ	J	AD	Spring,Eject Lever
5	LANGF1610AFZZ	J	AC	Bracket,Cancel
6	LCHSM0944AFM1	J	AT	Main Chassis Ass'y
7	PCUSG0599AFZZ	J	AB	Cushion,Mechanism
8	QPWBH0337AFM1	J	AN	Mechanism Flexible PWB Ass'y
8- 1	————		—	Mechanism Flexible PWB (Not Replacement Item)
8- 2(SW902)	QSW-M0170AFZZ	J	AD	Switch,Push Type [Disc Protect]
8- 3(PH901)	VHPGP1S93K/-1	J	AF	Phote Interrupter,GP1S93K
9	MSPRP0925AFZZ	J		Spring,Drive Screw
10	PCOVP1339AFZZ	J	AD	Cover,Mechanism
11	MARMM0170AFM1	J	AK	Magnetic Field Block
12	NGERH0603AFZZ	J	AE	Gear,Drive
⚠13	RCTRH8175AFZZ	J	BM	Optical Pickup Unit [Except for U.S.A.]
⚠13	RCTRH8175AF10	J	BM	Optical Pickup Unit [For U.S.A.]
14	MSPRP0922AFFJ	J	AD	Spring,Drive Grip
15	MSPRP0923AFZZ	J		Spring,Thrust Plate
16	NSFTM0292AFFW	J	AC	Shaft,Guide
17	MLEVF2641AFZZ	J		Lever,Eject
18	QPWBH0338AFZZ	J	AH	Magnetic Head Flexible PWB
19	MLEVF2637AFM1	J	AH	Lift Working Lever Ass'y
20	MLEVF2638AFFW	J	AD	Lever,Block
21	MLEVF2639AFFW	J	AD	Lever,Lift Joint
22	MLEVF2640AFZZ	J		Lever,Lift
23	MSPRD1362AFFJ	J	AD	Spring,Lift Lever
24	RCILH0112AFZZ	J	AM	Magnetic Head
501	LX-BZ0804AFFF	J	AA	Screw,ø1.4×2.2mm
502	LX-JZ0154AFZZ	J	AA	Screw,ø1.4×2.8mm
503	LX-BZ0823AFZZ	J	AA	Screw,ø1.4×1.2mm
504	LX-WZ9290AFZZ	J	AA	Washer,ø0.8×ø2.4×0.2mm
505	LX-BZ0800AFZZ	J	AA	Screw,ø1.4×2.5mm
506	XSPSN14P01500	J	AA	Screw,ø1.7×2.5mm
507	LX-JZ0148AFZZ	J	AA	Screw,ø1.7×3mm
508	XWSSD14-05000	J	AA	Washer,ø1.4×0.5mm
509	LX-BZ0959AFZZ	J	AB	Screw,ø1.4×1.8mm
510	LX-WZ9296AFZZ	J	AA	Washer,ø1.5×ø3.5×0.25mm
511	LX-BZ0974AFZZ	J	AB	Screw,ø1.4×5.5mm
512	LX-BZ0991AFZZ	J	AB	Screw,ø1.2×1.6mm
M901	RMOTV0524AFZZ	J	AS	Motor Ass'y [Spindle]
M902	RMOTV0511AFZZ	J	AT	Motor Ass'y [Sled]
M903	RMOTV0512AFM1	J	AR	Motor Ass'y [Head Up/Down]

CABINET PARTS

201	GFTAT3006AWM1	J	AW	Top Cabinet Ass'y [MD-MT15/15C/15H-S/15W/161E]
201	GFTAT3006AWM2	J	AW	Top Cabinet Ass'y [MD-MT15H-RD]
201	GFTAT3006AWM3	J	AW	Top Cabinet Ass'y [MD-MT18H]
201- 1	————		—	Top Cabinet (Not Replacement Item)
201- 2	————		—	Bracket,Top Cabinet (Not Replacement Item)
202	HDECQ0492AWM1	J	AP	Decoration Plate Ass'y [MD-MT15/15C/15H-S/15W]
202	HDECQ0492AWM2	J	AP	Decoration Plate Ass'y [MD-MT15H-RD]
202	HDECQ0498AWM1	J	AP	Decoration,Plate Ass'y [MD-MT161E]
202	HDECQ0499AWM1	J	AM	Decoration,Plate Ass'y [MD-MT18H]
202- 1	————		—	Plate,Decoration (Not Replacement Item)
202- 2	PSHEZ0039AWZZ	J		Sheet,Decoration Plate
203	TCAUS0044AWZZ	J	AB	Label B,Class 3B [MD-MT15H/15W/18H Only]
204	PSHEZ0035AWZZ	J	AB	Sheet A,Operation Button
205	PSHEZ0040AWZZ	J	AB	Sheet D,Operation Button
206	PSHEZ0041AWZZ	J	AB	Sheet E,Operation Button
207	JKNBZ0630AWSA	J	AM	Button,Operation
208	LANGT0058AWFW	J	AG	Bracket,Operation Button
209	MSPRP0026AWFW	J	AB	Spring A,Cartridge
210	MSPRP0027AWFW	J	AC	Spring B,Cartridge
211	MSPRP0028AWFW	J	AB	Spring C,Cartridge
212	TCAUS0043AWZZ	J	AC	Label A,Class 3B [MD-MT15H/15W/18H Only]
213	RUNTK0005AWZZ	J	AV	Key Switch Flexible PWB Ass'y
214	RUNTZ0015AWZZ	J	BD	LCD Ass'y
215	PSHEZ0046AWZZ	J	AB	Sheet E,LCD
216	PSHEZ0044AWZZ	J	AB	Sheet C,LCD
217	PCUSZ0016AWZZ	J	AB	Cushion,Mechanism,Top
218	PSHEZ0045AWZZ	J	AB	Sheet D,LCD
219	PCUSZ0017AWZZ	J	AB	Cushion,Cartridge
220	GFTAU3005AWSA	J	AS	Bottom Cabinet [MD-MT15H-S]
220	GFTAU3013AWSA	J	AS	Bottom,Cabinet [MD-MT161E]
220	GFTAU3014AWSA	J	AS	Bottom Cabinet [MD-MT15H-RD]
220	GFTAU3015AWSA	J	AS	Bottom Cabinet [MD-MT18H]
220	GFTAU3016AWSA	J	AS	Bottom Cabinet [MD-MT15-S]
220	GFTAU3017AWSA	J	AS	Bottom Cabinet [MD-MT15C-S]
220	GFTAU3018AWSA	J		Bottom Cabinet [MD-MT15W]
221	JKNBZ0625AWSA	J	AD	Button,Hold
222	GCOVA1241AWSA	J	AC	Cover,DC IN Jack
223	PSHET0014AWZZ	J	AE	Sheet,Bottom Cabinet

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
224	PSHEZ0043AWZZ	J	AB	Sheet,Bottom Cabinet Sheet
225	LHLDZ3010AWM1	J	AW	Main Frame Ass'y
226	PCUSZ0015AWZZ	J	AB	Cushion,Mechanism,Front
227	PCUSZ0014AWZZ	J	AB	Cushion,Mechanism,Right
228	PCUSG0534AFZZ	J	AC	Rubber,Preventive Vibration
229	PCUSG0641AFSA	J	AB	Insulator
230	PSHET0015AWZZ	J	AB	Sheet B,Insulator
231	PSHET0016AWZZ	J	AC	Sheet C,Insulator
232	PCOVW1009AW00	J	AC	Cover,Battery Terminal,-
233	QTANB9018AWFQ	J	AD	Terminal,Battery,-
234	PCOVW1008AW00	J	AC	Cover,Battery Terminal,+
235	QTANB9017AWFQ	J	AD	Terminal,Battery,+
236	PGIDM0027AW00	J	AC	Guide,Battery
237	QTANB9016AWFQ	J	AD	Terminal,Battery,+/-
238	LHLDZ1231AW00	J	AC	Holder,Battery Terminal,+/-
239	MLEVP0094AW00	J	AC	Lever,Battery Push
240	JKNBZ0624AWSA	J	AF	Lever,Open
241	GCABA1185AWSA	J	AF	Front Cabinet [MD-MT15H-RD/18H]
241	GCABA1185AWSB	J	AF	Front Cabinet [MD-MT15-S/15C-S/15H-S/15W/161E]
242	GCABB1185AWSA	J	AE	Rear Cabinet [MD-MT15H-RD/18H]
242	GCABB1185AWSB	J	AE	Rear Cabinet [MD-MT15-S/15C-S/15H-S/15W/161E]
243	QCNWN1478AWZZ	J	AG	Flat Cable,33Pin
244	PSHEF0019AWZZ	J	AB	Felt,Mechanism Flexible PWB
245	GDORB0001AWSA	J	AE	Door,Battery [MD-MT15-S/15C-S/15H-S/15W/161E]
245	GDORB0001AWSD	J	AF	Door,Battery [MD-MT15H-RD]
245	GDORB0001AWSE	J	AF	Door,Battery [MD-MT18H]
246	PCUSZ0012AWZZ	J	AB	Cushion,Vub
247	PCUSZ0013AWZZ	J	AC	Support,Head Cushion
248	PSHEZ0047AWZZ	J		Insulate Fiber B
601	LX-BZ0045AWF3	J		Screw,ø1.4×2mm
602	LX-BZ0805AFFN	J	AB	Screw,ø1.7×2.5mm
603	LX-BZ0045AWFN	J		Screw,ø1.4×2mm

ACCESSORIES/PACKING PARTS (MD-MT15C/15H/15W/161E/18H)

	RADPA3040AWZZ	J	AX	AC Adaptor [MD-MT15C]
	RADPA7038AWZZ	J	BA	AC Adaptor [MD-MT18H]
	RPHOH0002AWZZ	J	AZ	Headphones [MD-MT15C Only]
	SPAKA0219AWZZ	J	AC	Packing Add.,Unit [MD-MT18H]
	SPAKA0220AWZZ	J	AC	Packing Add.,Unit [MD-MT15C]
	SPAKC0820AWZZ	J		Packing Case [MD-MT15H-S]
	SPAKC0822AWZZ	J		Packing Case [MD-MT15H-RD]
	SPAKC0823AWZZ	J		Packing Case [MD-MT18H]
	SPAKC0824AWZZ	J		Packing Case [MD-MT15W]
	SPAKC0827AWZZ	J		Packing Case [MD-MT15C]
	SPAKZ0484AWZZ	J	AC	Pad,AC Adaptor [MD-MT18H]
	SPAKZ0485AWZZ	J	AD	Pad,AC Adaptor [MD-MT15C]
	SPAKZ0490AWZZ	J	AC	Pad,Operation Manual [MD-MT15W for Australia/New Zealand]
	TCAUH0050AWZZ	J	AB	Caution,Headphones [MD-MT15C Only]
	TINSE0267AWZZ	J		Operation Manual [MD-MT15W for Australia/New Zealand]
	TINSK0092AWZZ	J	AH	Operation Manual [MD-MT15C]
	TINSZ0454AWZZ	J	AM	Operation Manual [MD-MT15H]
	TINSZ0455AWZZ	J		Operation Manual [MD-MT15W Except for Australia/New Zealand]
	TINSZ0456AWZZ	J	AM	Operation Manual [MD-MT18H]
	TLABE0307AWZZ	J		Label,Bar Code [MD-MT15H-S]
	TLABE0308AWZZ	J		Label,Bar Code [MD-MT15W for Australia/New Zealand]
	TLABE0311AWZZ	J		Label,Bar Code [MD-MT15H-RD]
	TLABE0312AWZZ	J		Label,Bar Code [MD-MT18H]
	TLABJ0009AWSA	J	AB	Label,SHARP Corpration Japan [MD-MT15W for Chile/Peru/Bolivia Only]
	TLABJ0010AWZZ	J	AB	Label,Japan [MD-MT15W for Chile/Peru/Bolivia Only]
	TLABN0092AWZZ	J	AB	Label,Serial No. [MD-MT15C]
	TLABN0092AWZZ	J	AB	Label,Serial No. [MD-MT15W for New Zealand]
	TLABN0092AW02	J	AB	Label,Serial No. [MD-MT15H-S/15H-RD/18H]
	TLABN0092AW02	J	AB	Label,Serial No. [MD-MT15W fo Central & South America/Chile, Peru/Bolivia]
	TLABRF235AWZZ	J		Label,Bar Code [MD-MT15C]
	TLABR1058AWZZ	J		Label,Bar Code [MD-MT15W for Central & South America/Chile/Peru/Bolivia]
	TLABZ0600AWSA	J	AC	Label,Made in Malaysia [MD-MT15W for Australia/New Zealand/Central & South America Only]
	TLABZ0618AWZZ	J	AB	Label,Made in Malaysia [MD-MT15W for Australia/New Zealand/Central & South America Only]
	TLABZ0619AWZZ	J	AB	Label,Made in Malaysia [MD-MT15W for Australia/New Zealand/Central & South America Only]
	92LG-CARD1266E	J	AB	Gurantee Card [MD-MT15W for Australia/New Zealand Only]
1	QCNWG0382AFZZ	J	AK	Connecting Cord,RCA Type
2	RPHOH0001AWZZ	J	AW	Earphones [Except for MD-MT15C]
3	SPAKA0222AWZZ	J	AC	Packing Add.,Unit [MD-MT15H/15W/161E]
4	SPAKC0821AWZZ	J	AG	Packing Case [MD-MT161E]
5	TINSE0266AWZZ	J	AE	Operation Manual [MD-MT161E]
6	TCADS0002AWZZ	J	AB	Service Card [MD-MT161E Only]
7	SPAKZ0490AWZZ	J	AC	Pad,Operation Manual [MD-MT161E]
8	UBAGC0002AWSA	J	AK	Carrying Case
9	TLABN0088AWZZ	J	AB	Label,Serial No.
10	SPAKZ0522AWZZ	J	AC	Cushion,Protect
11	SPAKZ0518AWZZ	J	AB	Sheet,Protect
12	TLABN0092AWZZ	J	AB	Label,Serial No. [MD-MT161E]
13	TLABE0313AWZZ	J		Label,Bar Code [MD-MT161E]

PACKING PARTS (MD-MT15 for Central America)

	SPAKA0220AWZZ	J	AC	Packing Add.,Unit [MD-MT15]
	SPAKC0819AWZZ	J		Packing Case [MD-MT15]
	SPAKZ0485AWZZ	J	AD	Pad,AC Adaptor [MD-MT15]
	SPAKZ0518AWZZ	J	AB	Sheet,Protect
	SPAKZ0522AWZZ	J	AC	Cushion,Protect
	TLABN0088AWZZ	J	AB	Label,Serial No.
	TLABN0092AWZZ	J	AB	Label,Serial No. [Central America Only]
	TLABR1057AWZZ	J	AB	Label,Bar Code [MD-MT15]

ACCESSORIES (MD-MT15)

	QCNWG0382AFZZ	J	AK	Connecting Cord,RCA Type
	RADPA3040AWZZ	J	AX	AC Adaptor [MD-MT15]
	RPHOH0002AWZZ	J	AZ	Headphones [MD-MT15]
	TCAUH0050AWZZ	J	AB	Caution,Headphones [MD-MT15]
	TINSE0265AWZZ	J	AE	Operation Manual [MD-MT15]
	TINSZ0453AWZZ	J	AB	Quick Guide [MD-MT15 Only]
	UBAGC0002AWSA	J	AK	Carrying Case

P.W.B. ASSEMBLY (Not Replacement Item) (MD-MT15/15C/15W/161E Only)

PWB-A1,2	92LPWB3112MDSS	J	—	Main,Audio (Combined Ass'y)

OTHER SERVICE PARTS

	UDSKM0001AFZZ	J	AZ	Recording Mini Disc
	88GMMD-110	J	BV	High Reflection Disc MMD-110 (TEAC Test MD)
	88GMMD-212	J	BU	Low Reflection Disc MMD-212 (TEAC Test MD)
	88GMMD-213A	J		Low Reflection Disc MMD-213A (TEAC Test MD)

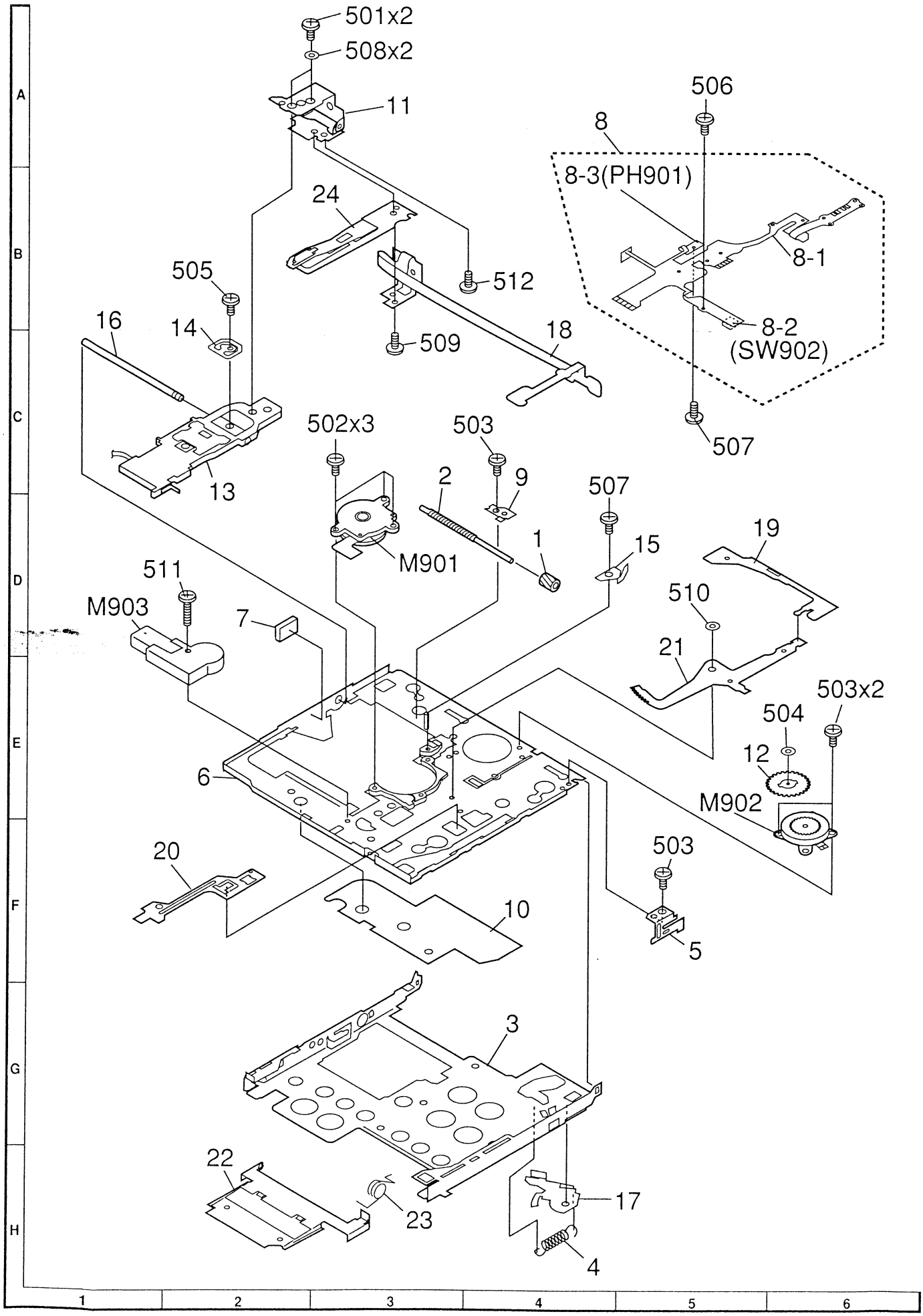


Figure 5 MD MECHANISM EXPLODED VIEW

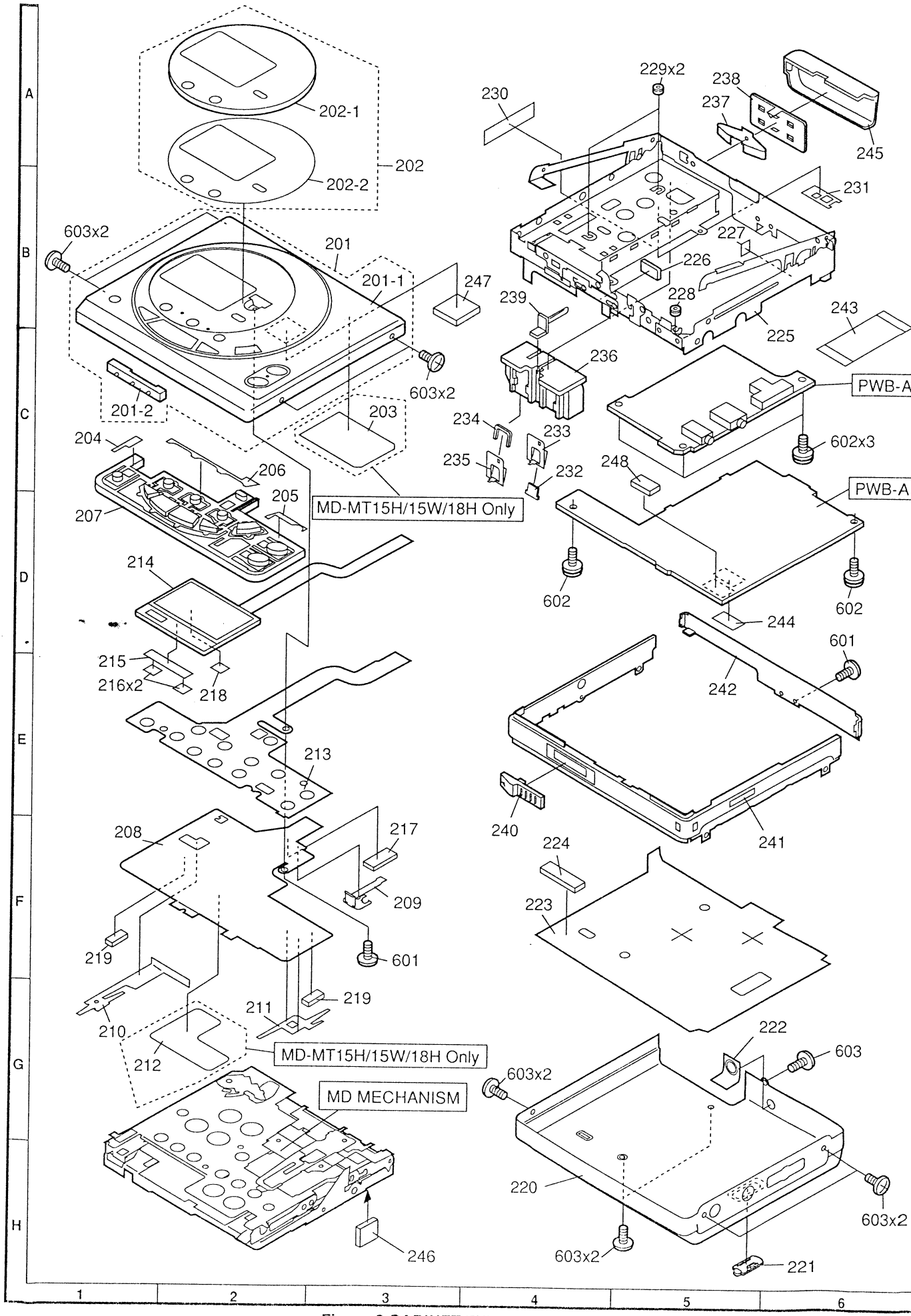
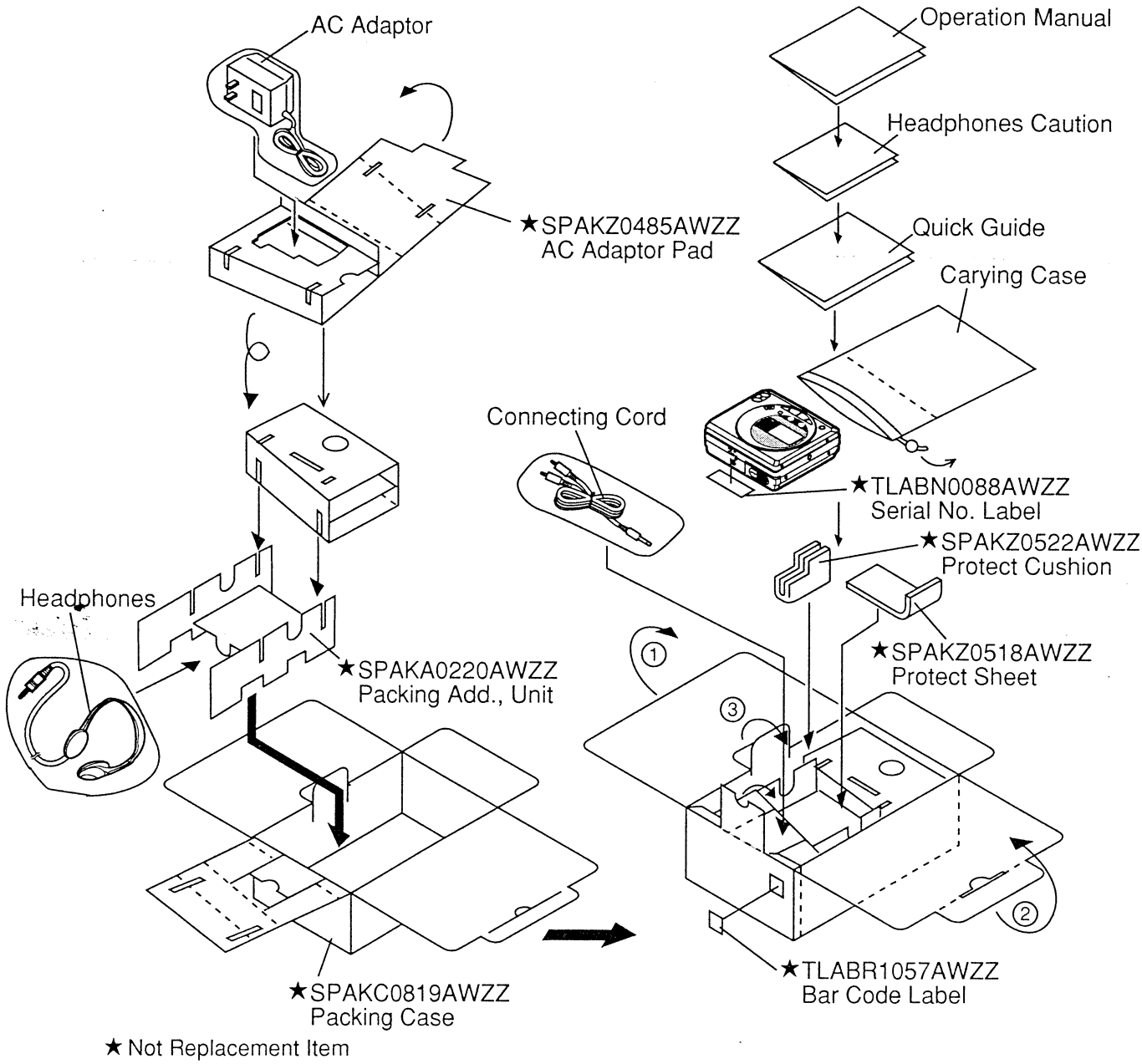


Figure 6 CABINET EXPLODED VIEW

PACKING OF THE SET (MD-MT15 FOR U.S.A. ONLY)

Setting position of switches and knobs		
UNIT	HOLD	OFF



★ Not Replacement Item

PACKING METHOD (MD-MT161E ONLY)

Setting position of switches and knobs		
UNIT	HOLD	OFF

1. Connecting Cord, RCA Type	QCNWG0382AFZZ
2. Earphones	RPHOH0001AWZZ
3. Packing Add., Unit	SPAKA0222AWZZ
4. Packing Case	SPAKC0821AWZZ
5. Operation Manual	TiNSE0266AWZZ
6. Service Card	TCADS0002AWZZ
7. Operation Manual Pad	SPAKZ0490AWZZ
8. Carrying Case	UBAGC0002AWSA
9. Serial No. Label	TLABN0088AWZZ
10. Protect Cushion	SPAKZ0522AWZZ
11. Protect Sheet	SPAKZ0518AWZZ
12. Serial No. Label	TLABN0092AWZZ
13. Bar Code Label	TLABE0313AWZZ